

US011172712B2

(12) **United States Patent**
McHugh

(10) **Patent No.:** **US 11,172,712 B2**
(45) **Date of Patent:** **Nov. 16, 2021**

(54) **GARMENT EXTENDER**

(71) Applicant: **Michael Benjamin McHugh**,
Pointe-Claire (CA)

(72) Inventor: **Michael Benjamin McHugh**,
Pointe-Claire (CA)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 361 days.

(21) Appl. No.: **16/408,693**

(22) Filed: **May 10, 2019**

(65) **Prior Publication Data**

US 2019/0261702 A1 Aug. 29, 2019

Related U.S. Application Data

(63) Continuation-in-part of application No. 15/695,395,
filed on Sep. 5, 2017, now Pat. No. 10,537,142.

(51) **Int. Cl.**

A41D 1/21 (2018.01)
A41D 15/00 (2006.01)
A44B 19/24 (2006.01)

(52) **U.S. Cl.**

CPC **A41D 1/21** (2018.01); **A41D 15/00**
(2013.01); **A44B 19/24** (2013.01); **A41D**
2300/322 (2013.01); **A41D 2400/482** (2013.01)

(58) **Field of Classification Search**

CPC **A41D 3/00**; **A41D 13/0005**; **A41D 1/21**;
A41D 1/215; **A41D 1/22**; **A41D 2400/82**;
A41D 2300/324; **A44B 19/00**; **A44B**
19/24; **A44B 19/28**; **A44B 19/265**; **A44B**
19/262

USPC **2/95**, **2.17**, **2.15**, **100**, **78.4**
See application file for complete search history.

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Pictures taken by the applicant and provided in file "Exhibit_A.pdf"
of two physical products that were known by the applicant at least
as early as Dec. 2014 and Dec. 2019.

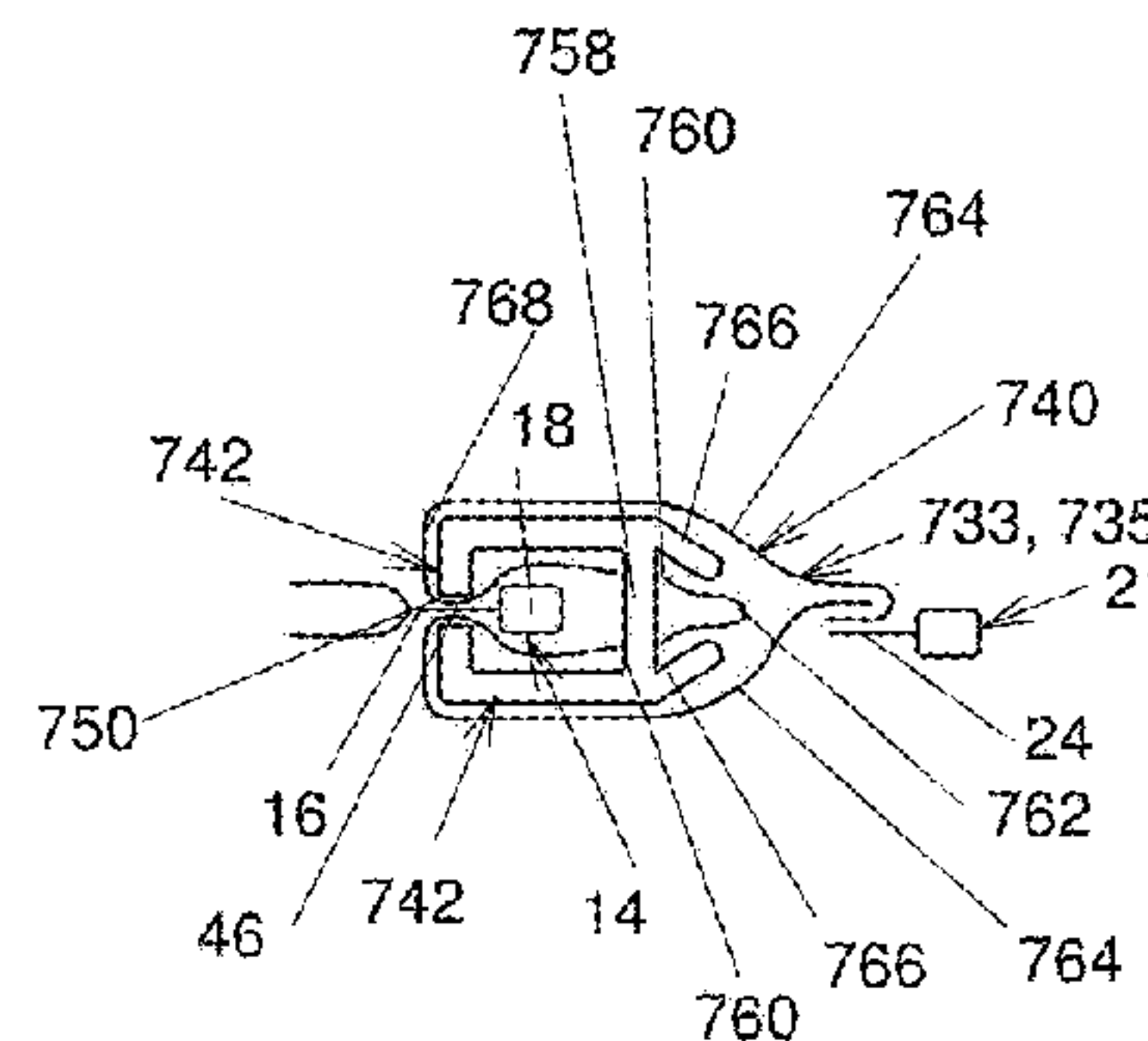
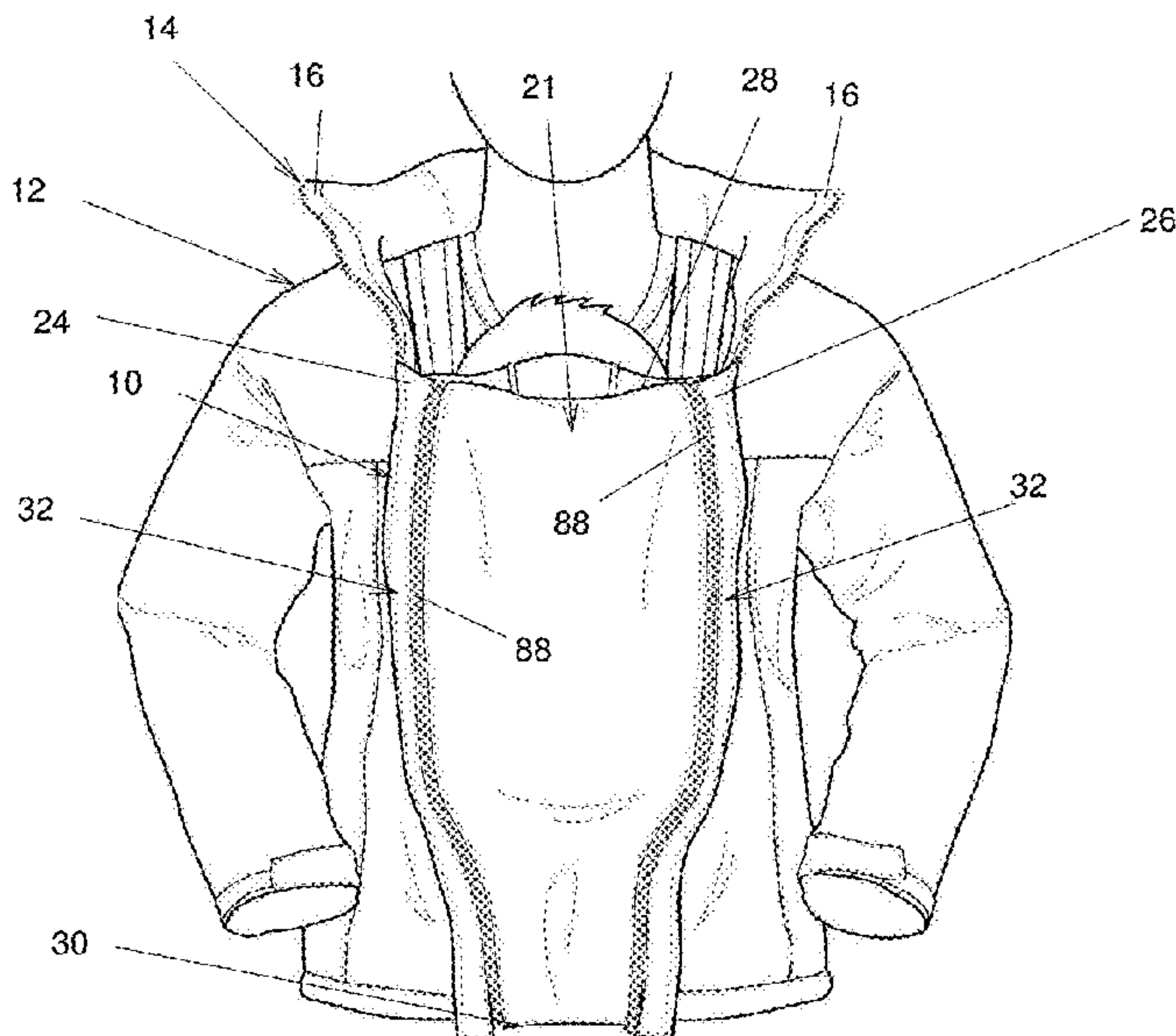
(Continued)

Primary Examiner — Timothy K Trieu

(57) **ABSTRACT**

A garment extender securable to a slide fastener of a
garment. The garment extender includes an attachment at
least partially covered by a foldable material.

21 Claims, 18 Drawing Sheets



(56)

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OTHER PUBLICATIONS

Pictures taken by the applicant and provided in file "Exhibit_A.pdf" of a physical product that was known by the applicant at least as early as Dec. 2014.

* cited by examiner

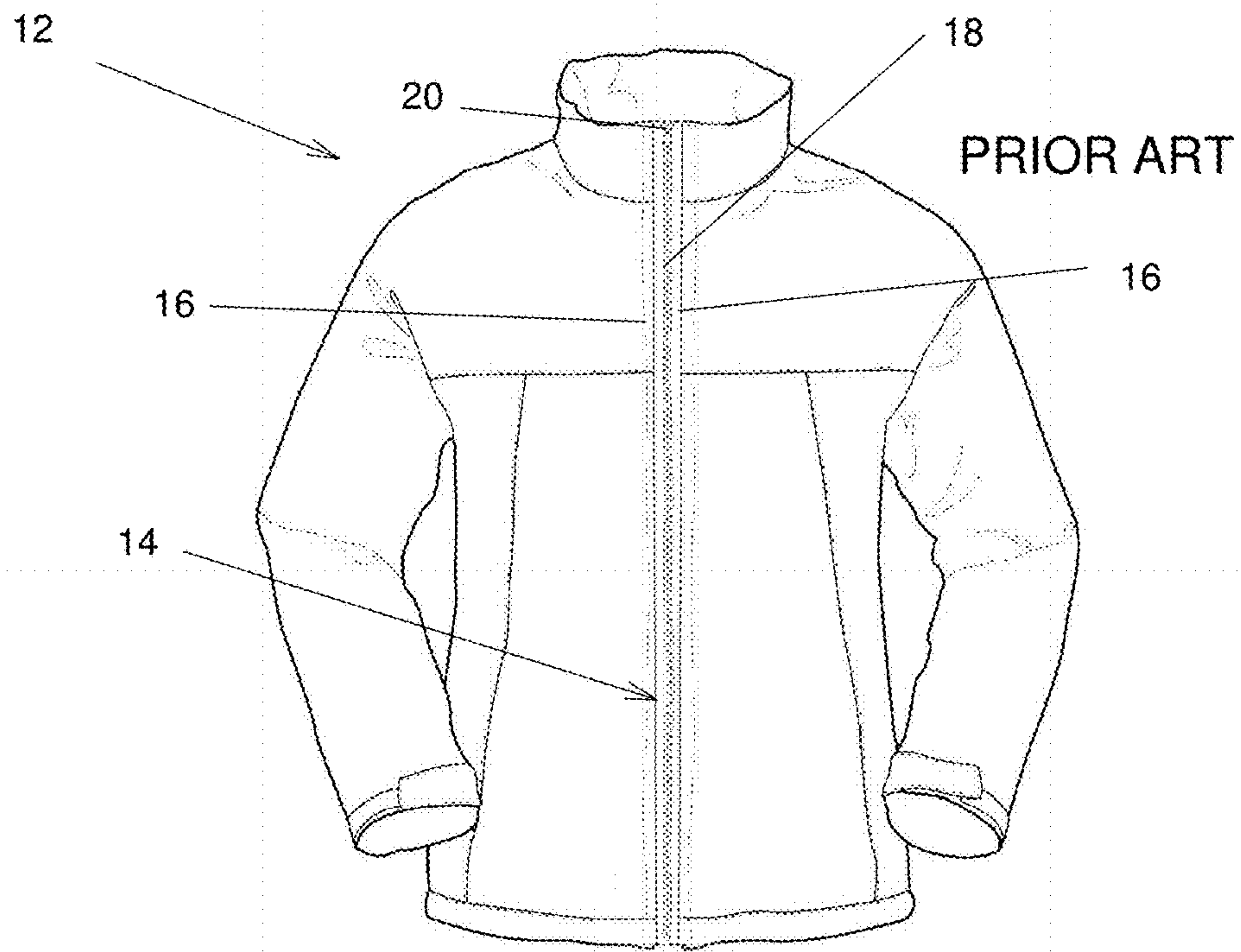


FIG. 1

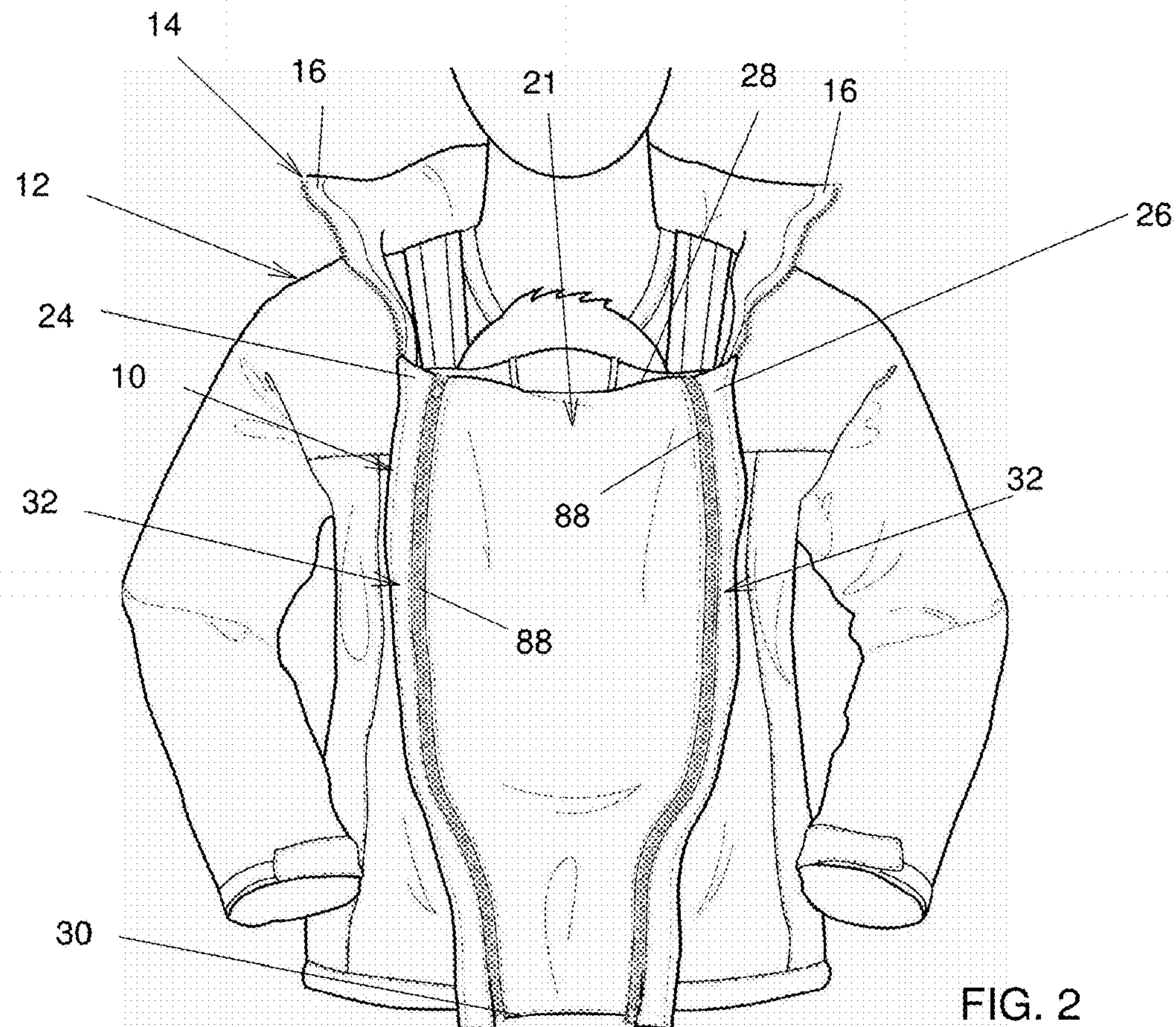


FIG. 2

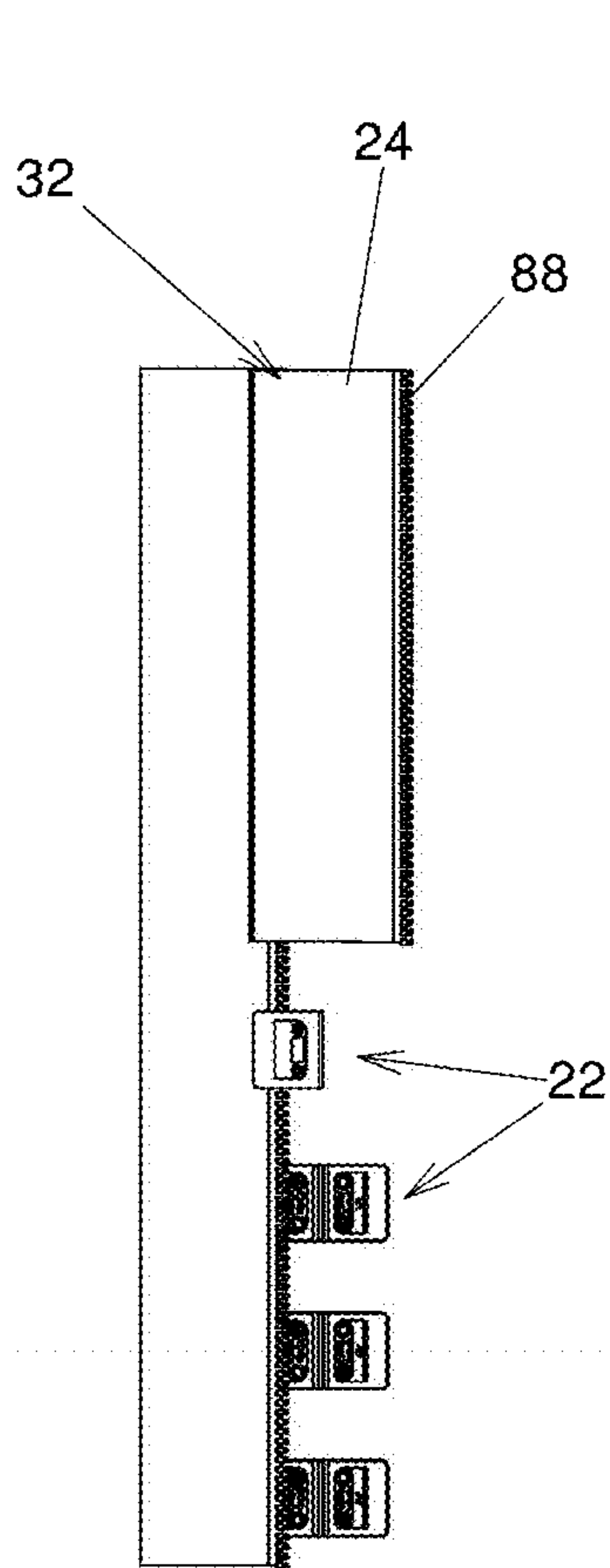


FIG. 3

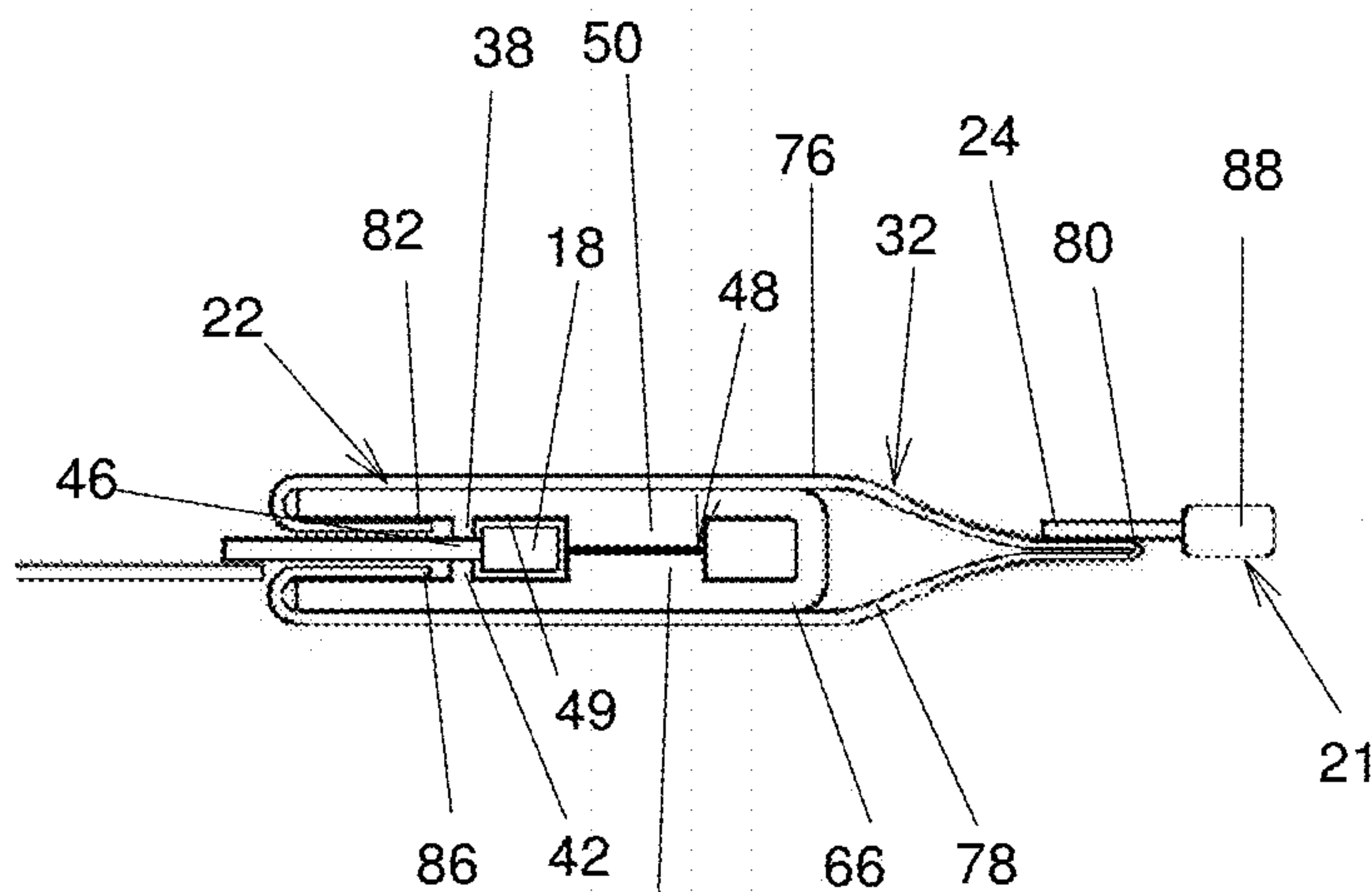


FIG. 4

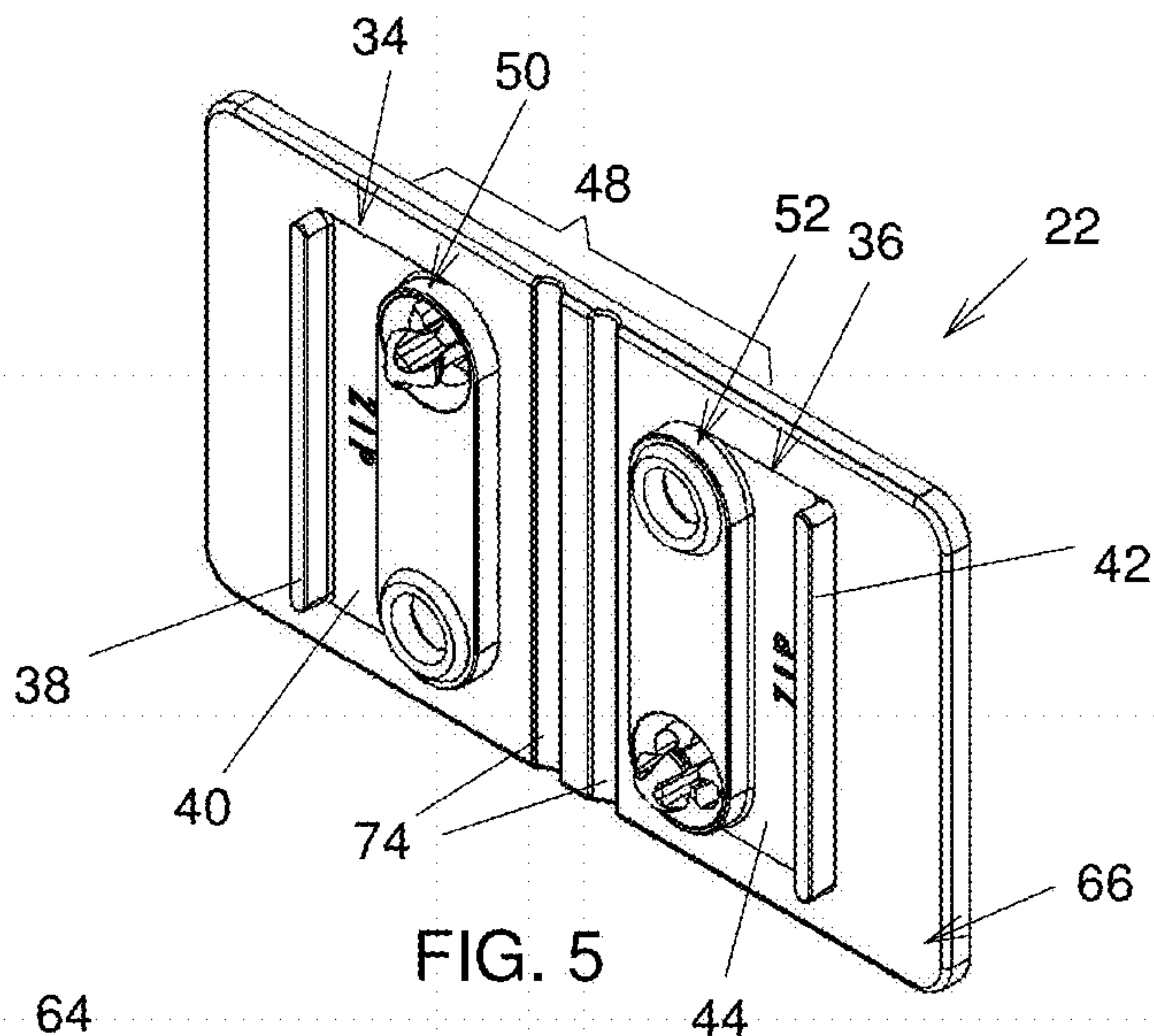


FIG. 5

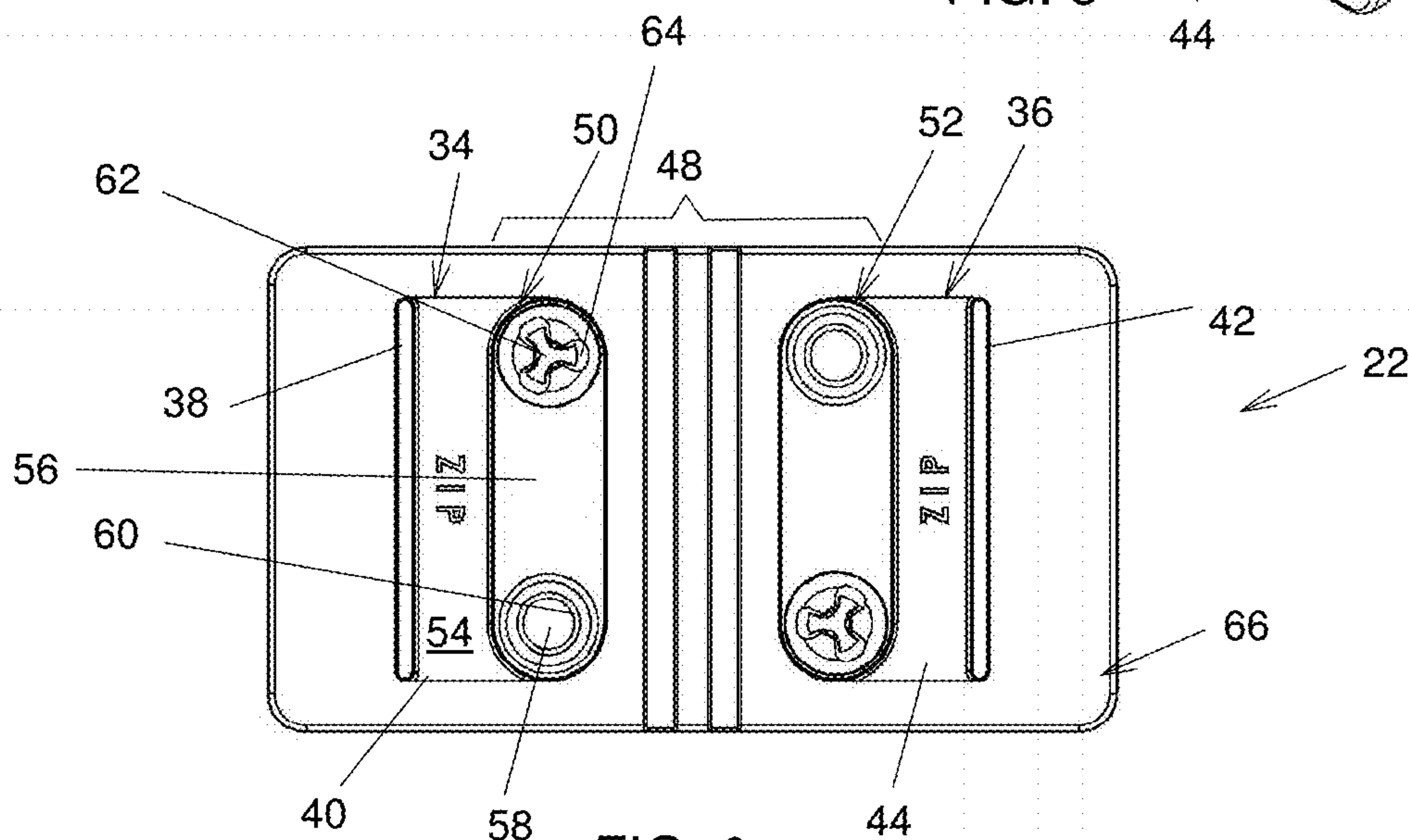


FIG. 6

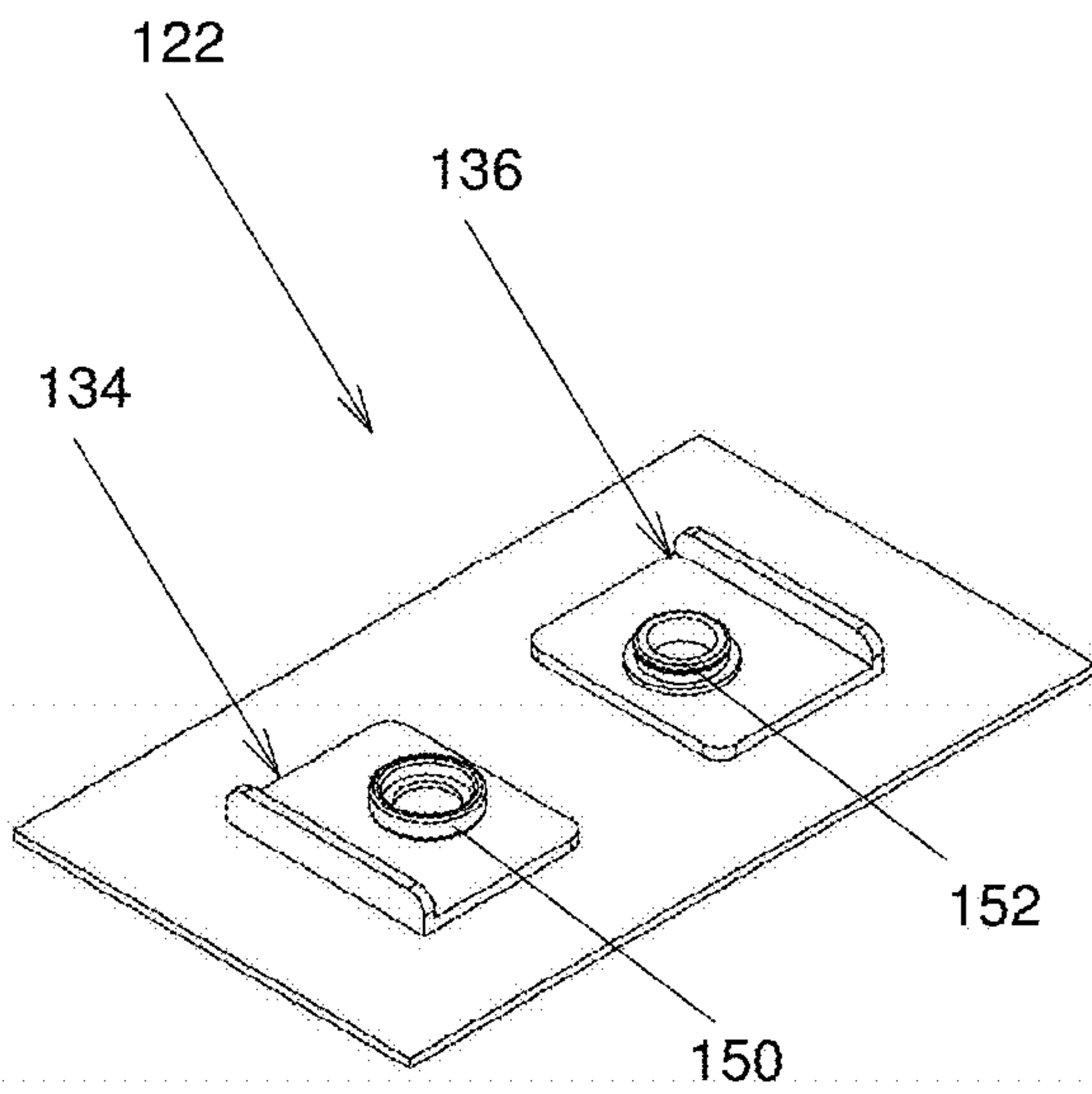


FIG. 9

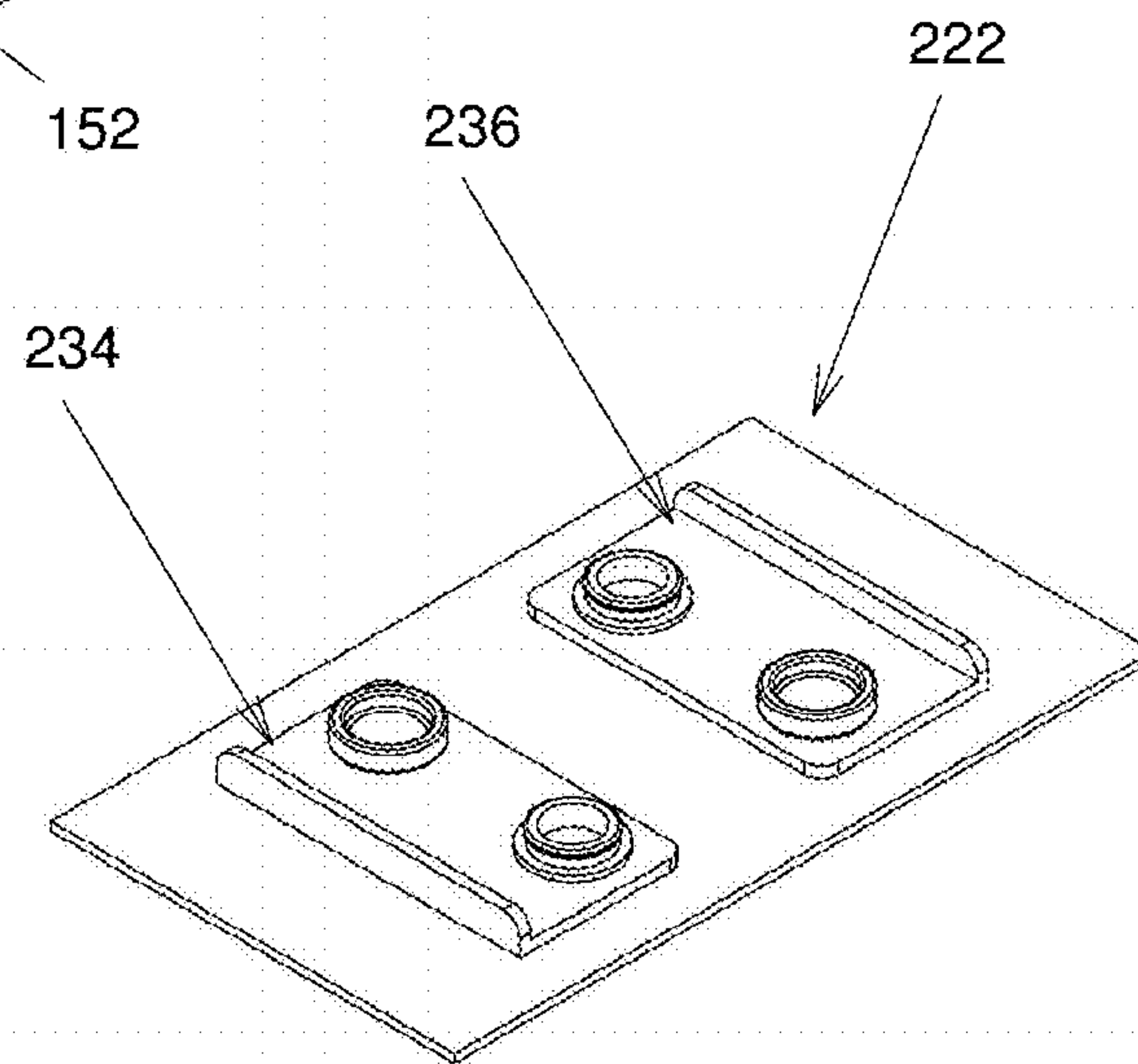


FIG. 10

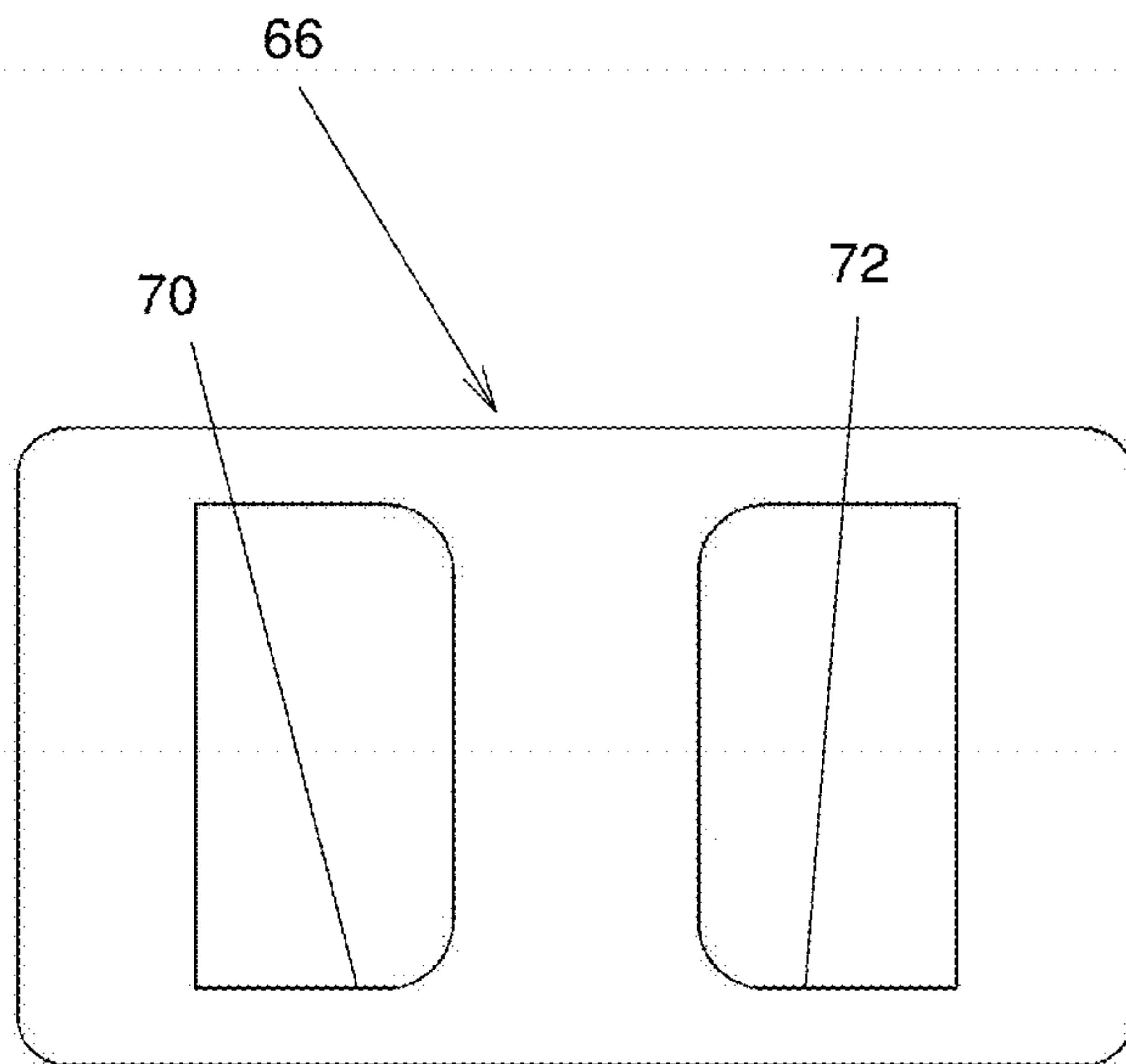
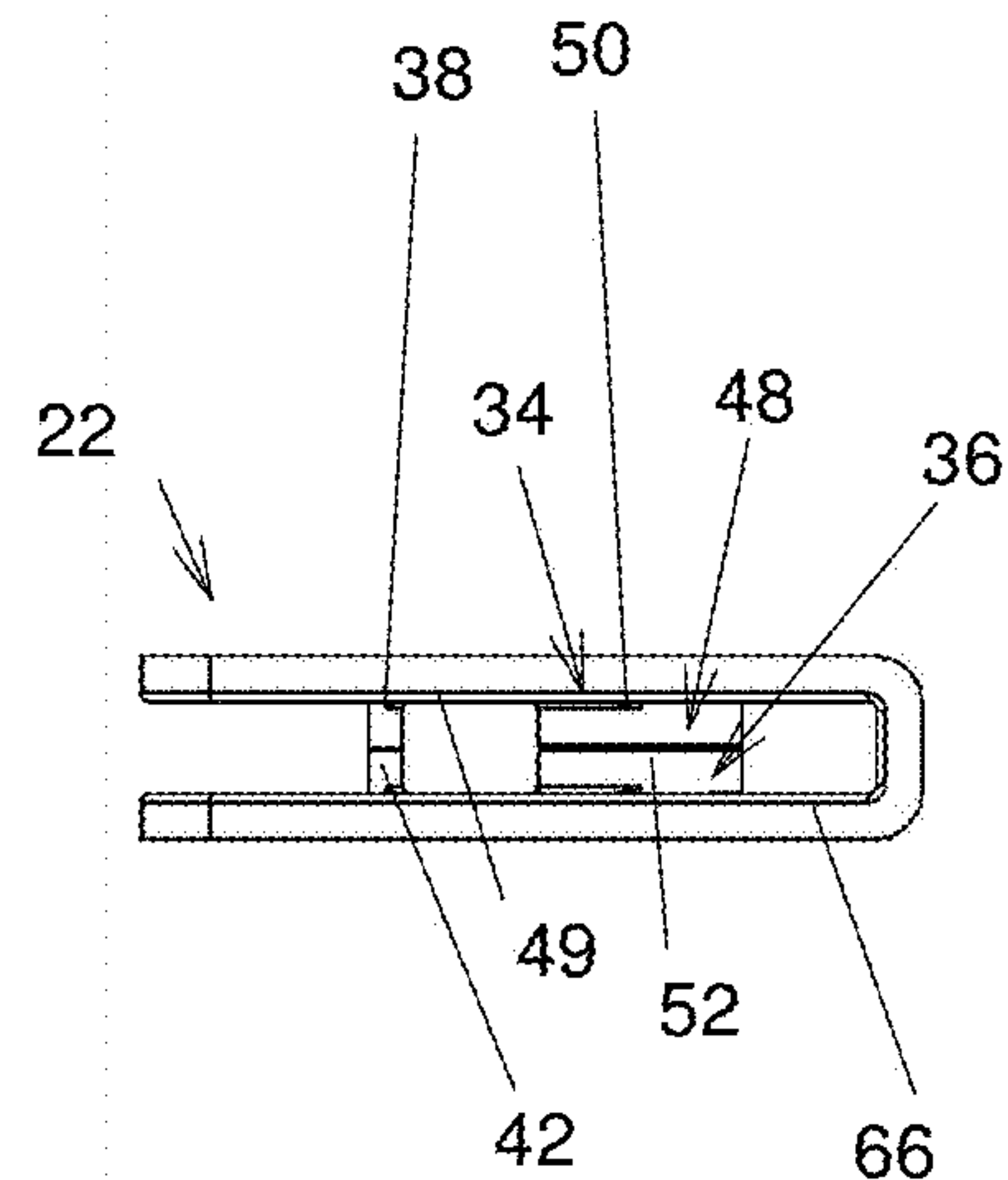


FIG. 7

FIG. 8



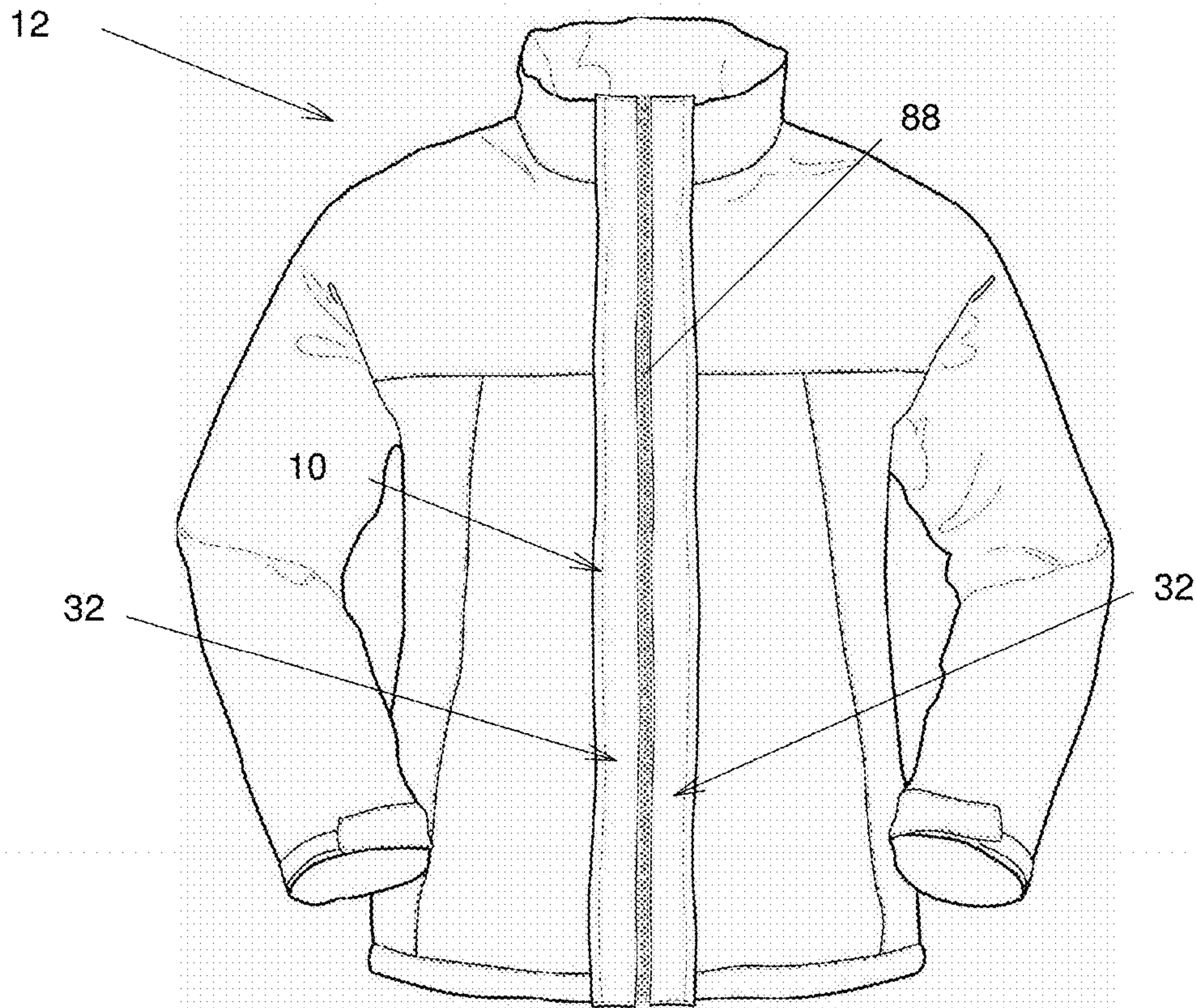


FIG. 13

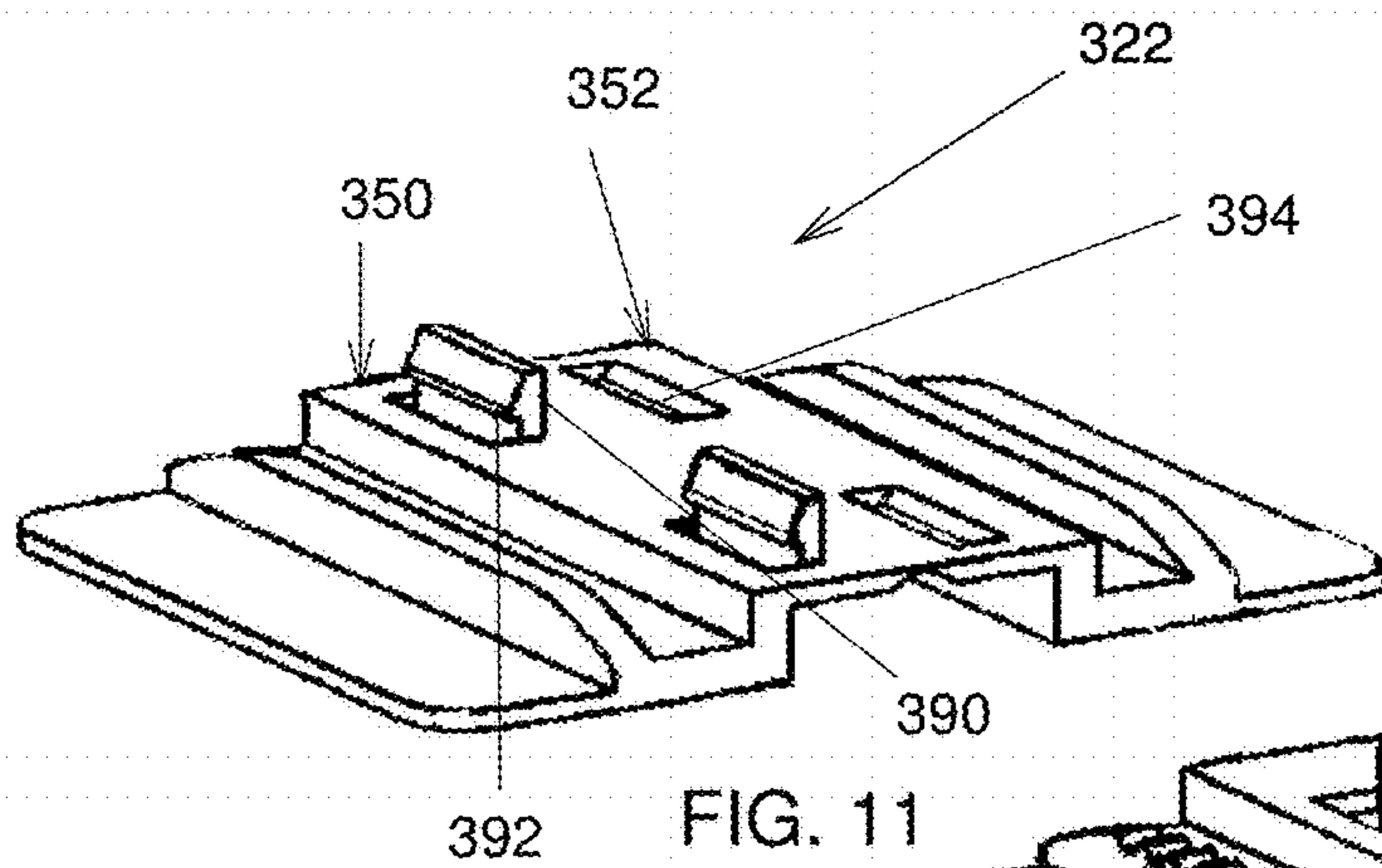


FIG. 11

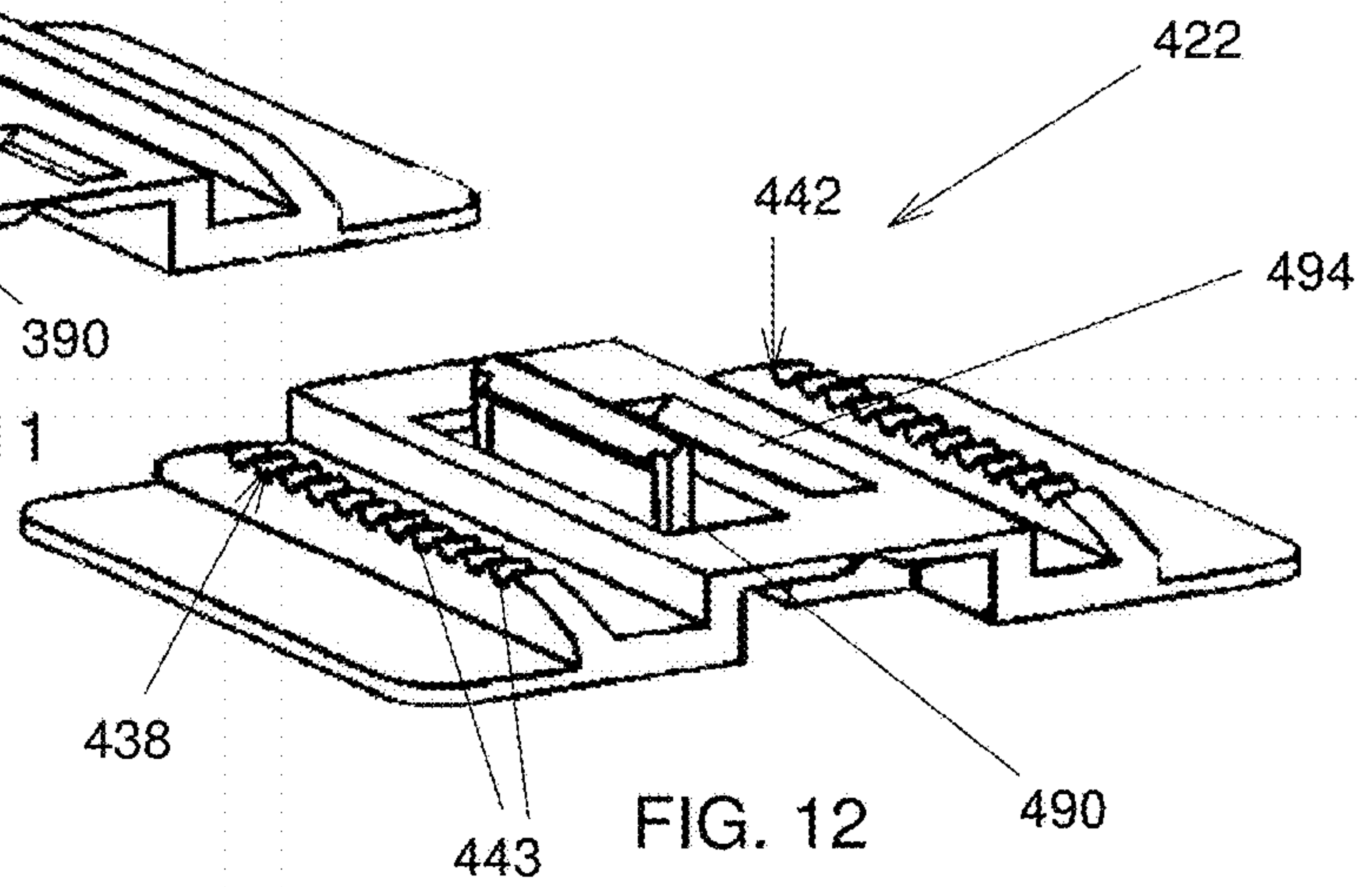
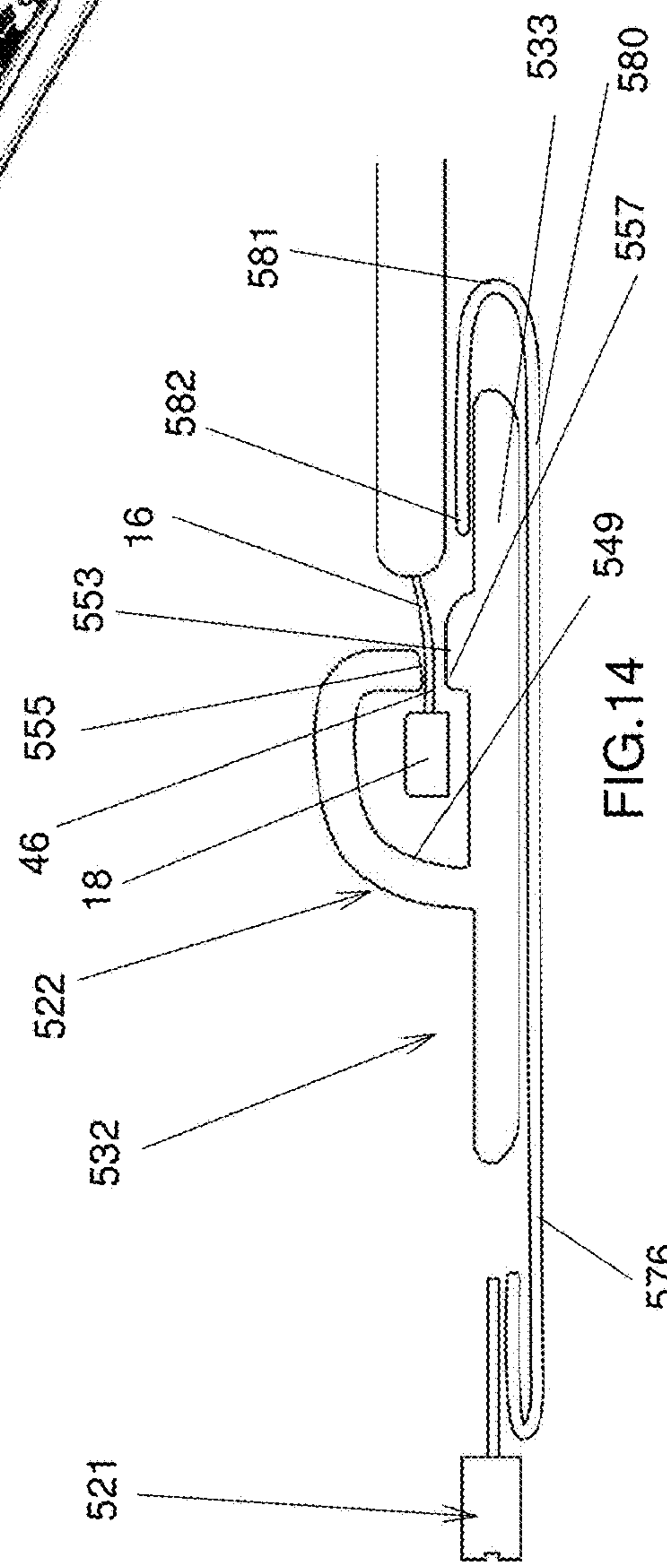
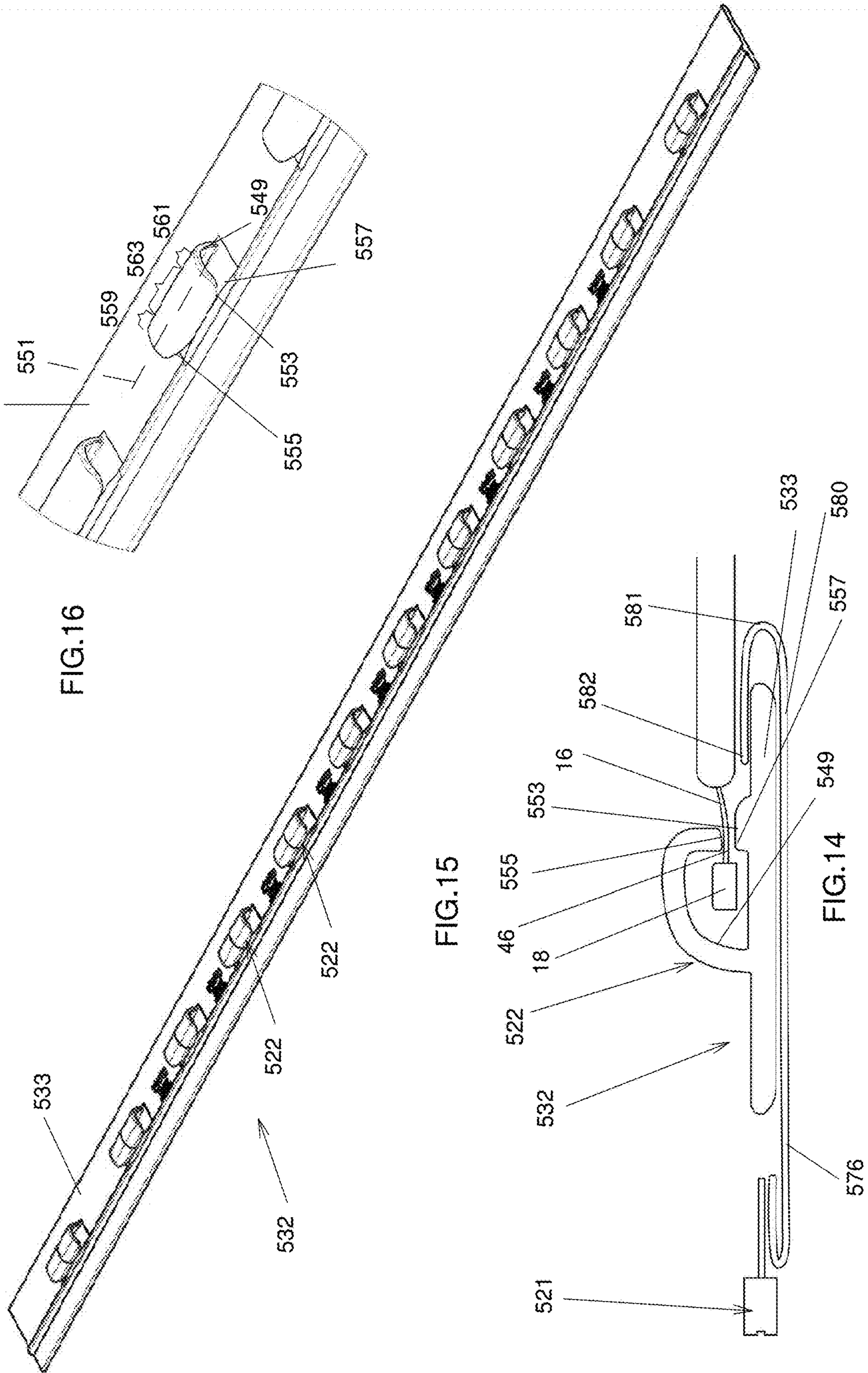
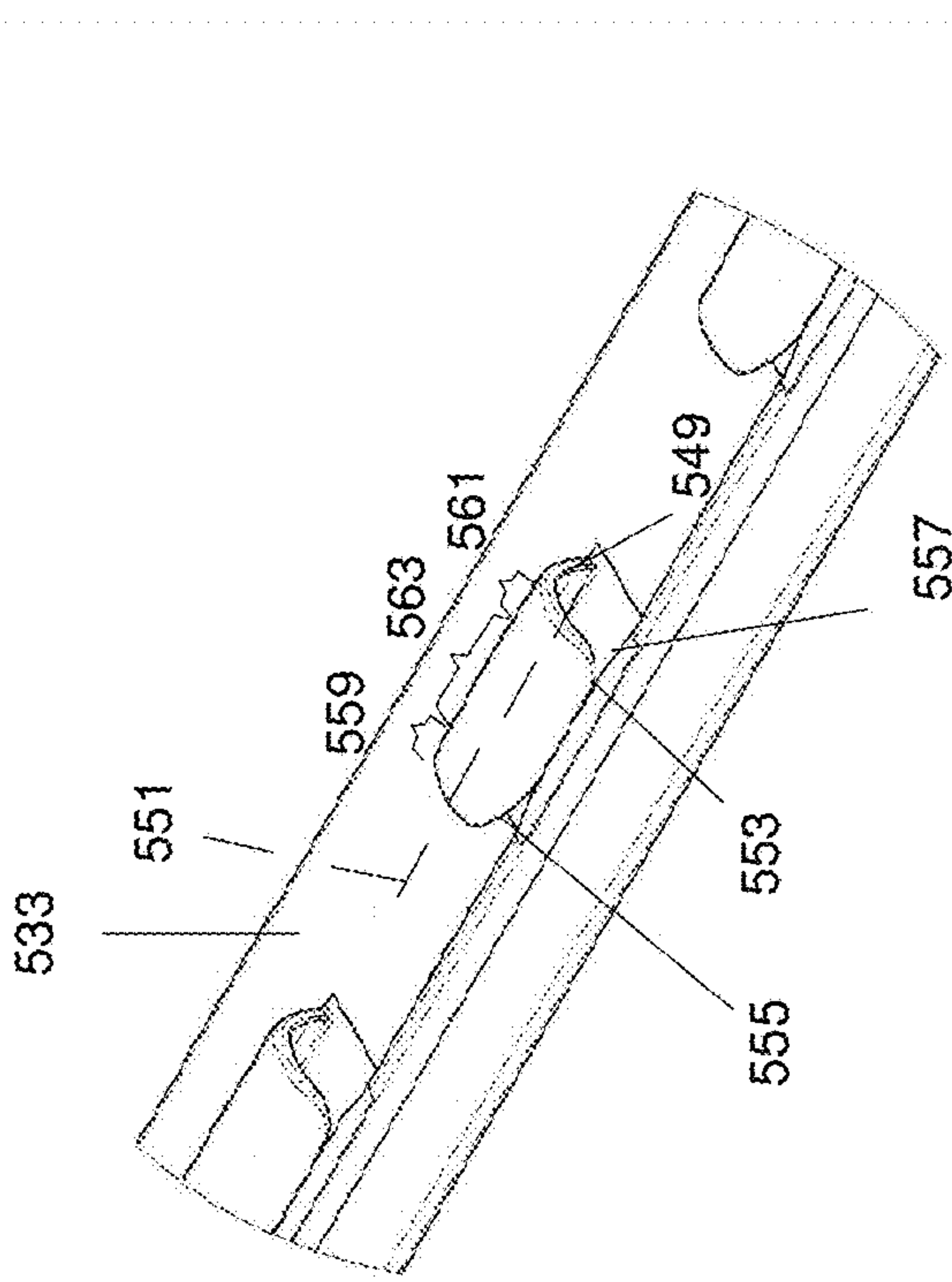


FIG. 12



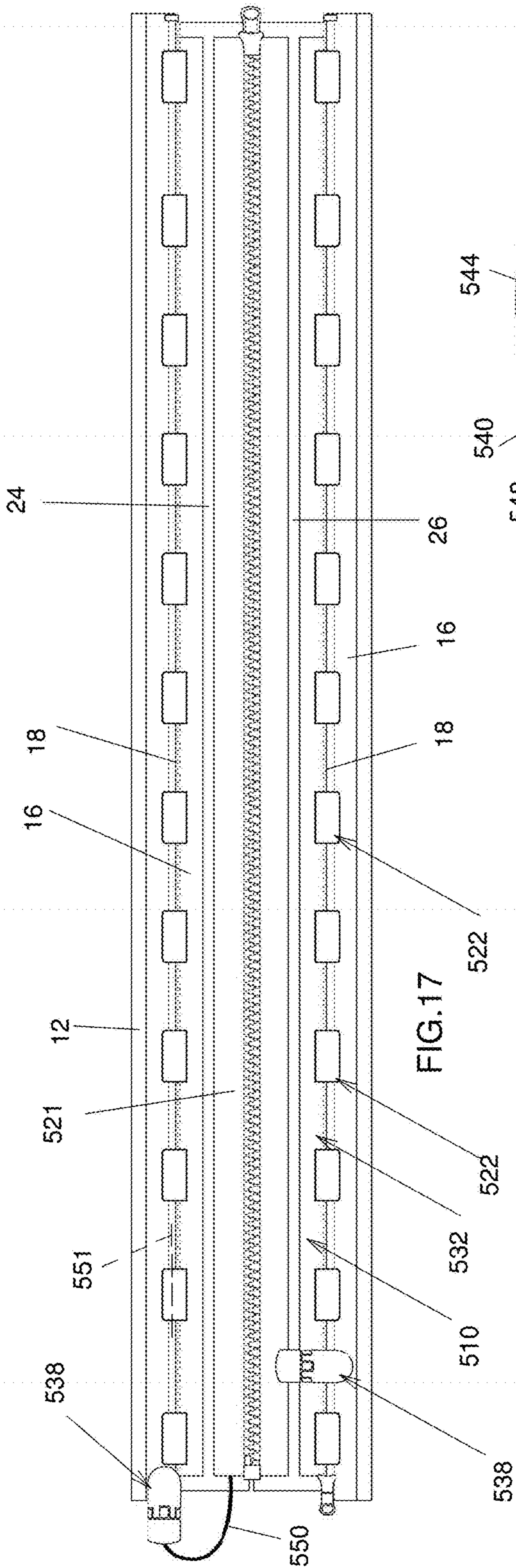


FIG. 17

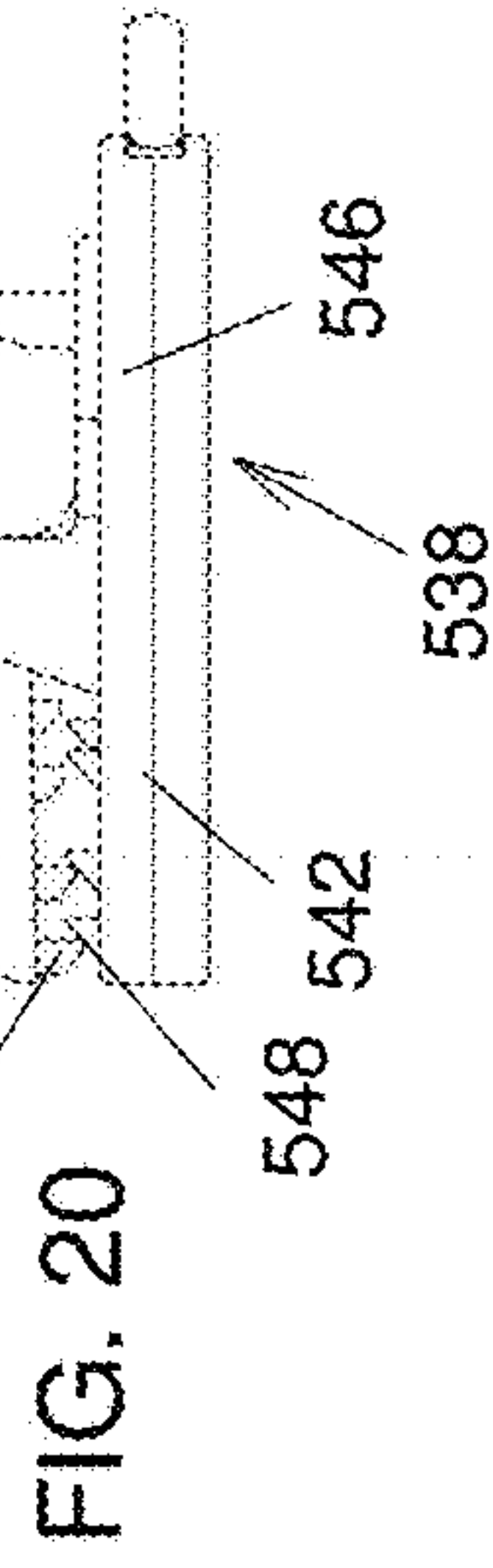


FIG. 20

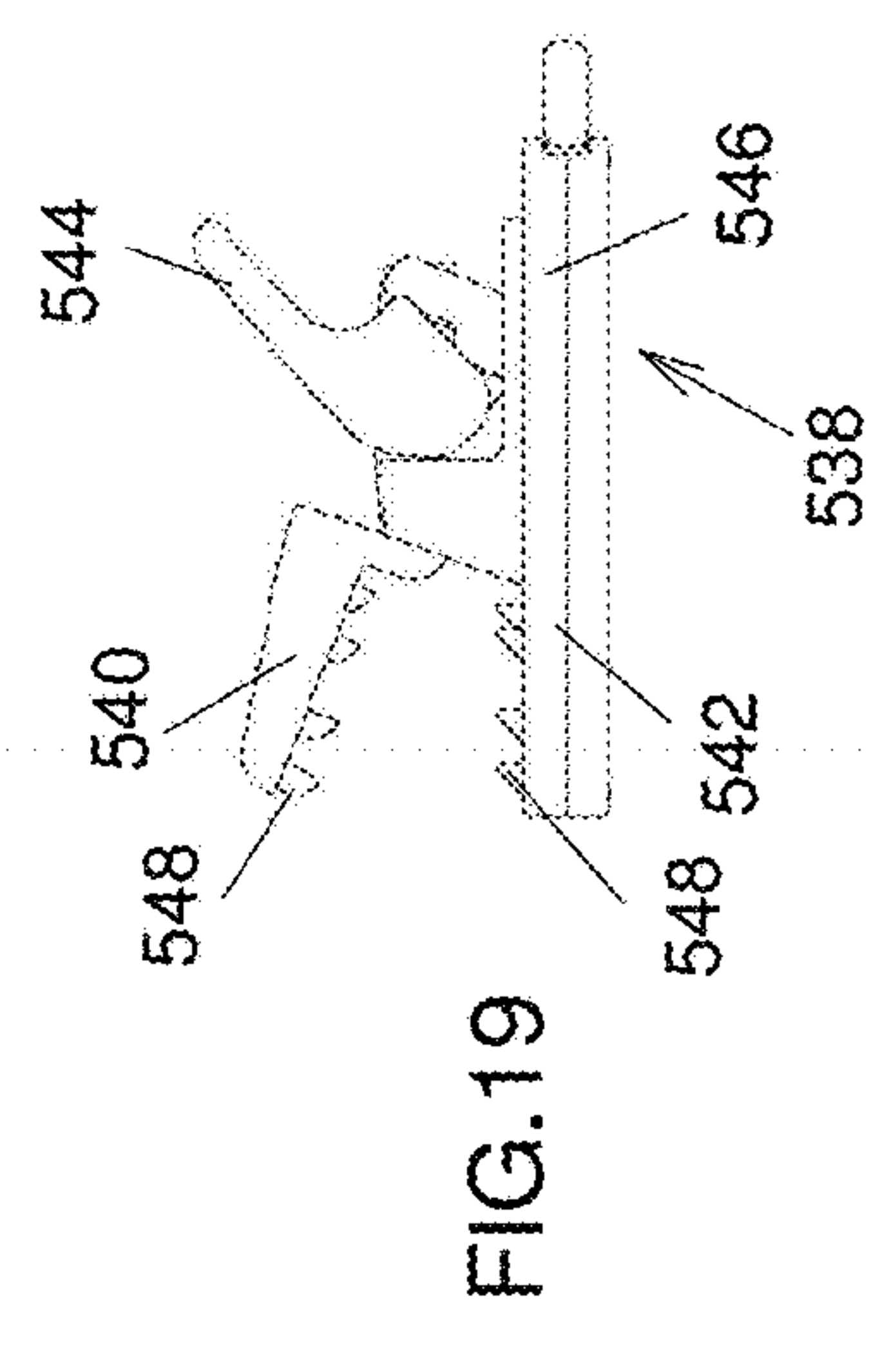


FIG. 19

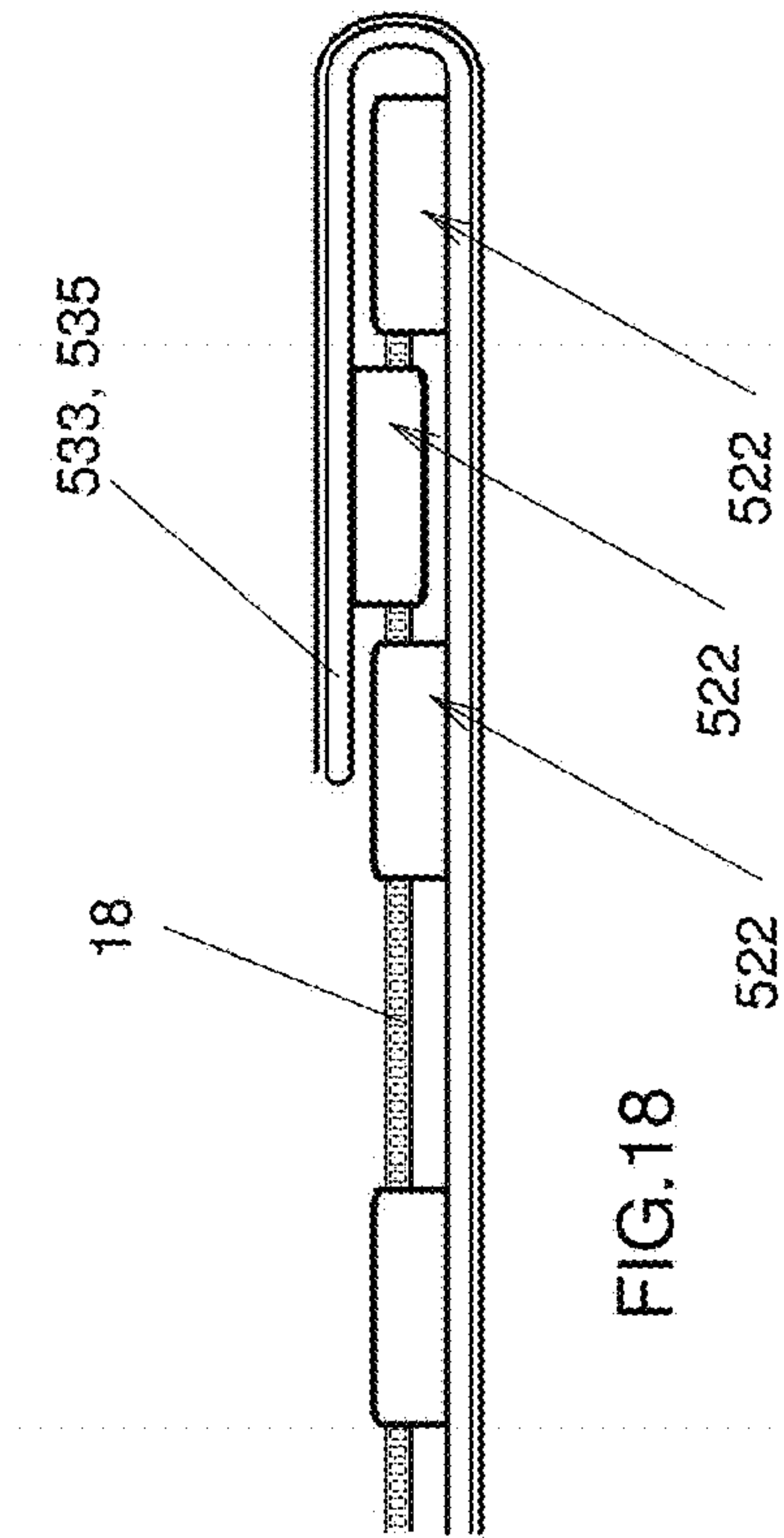


FIG. 18

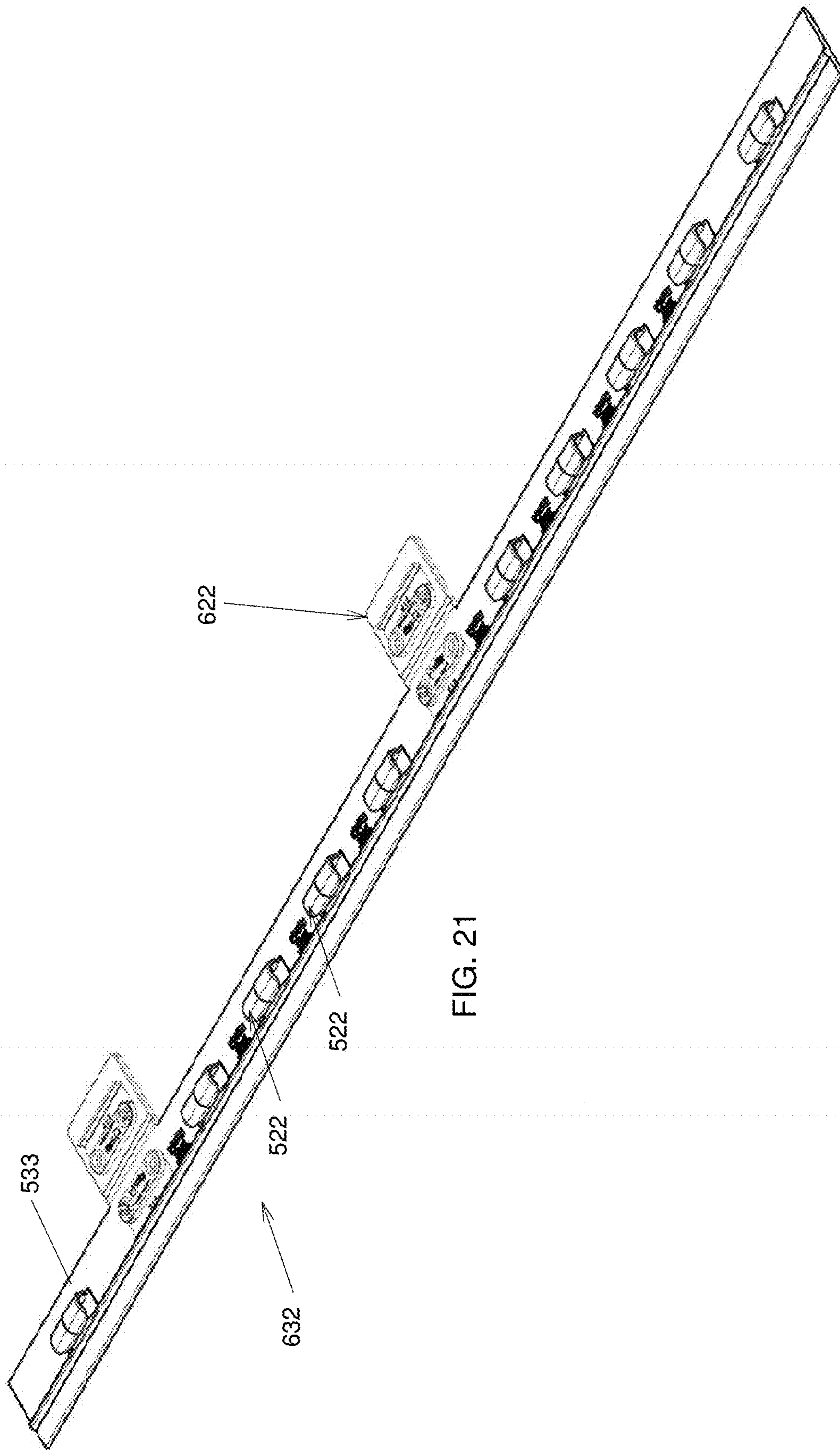


FIG. 21

FIG. 25

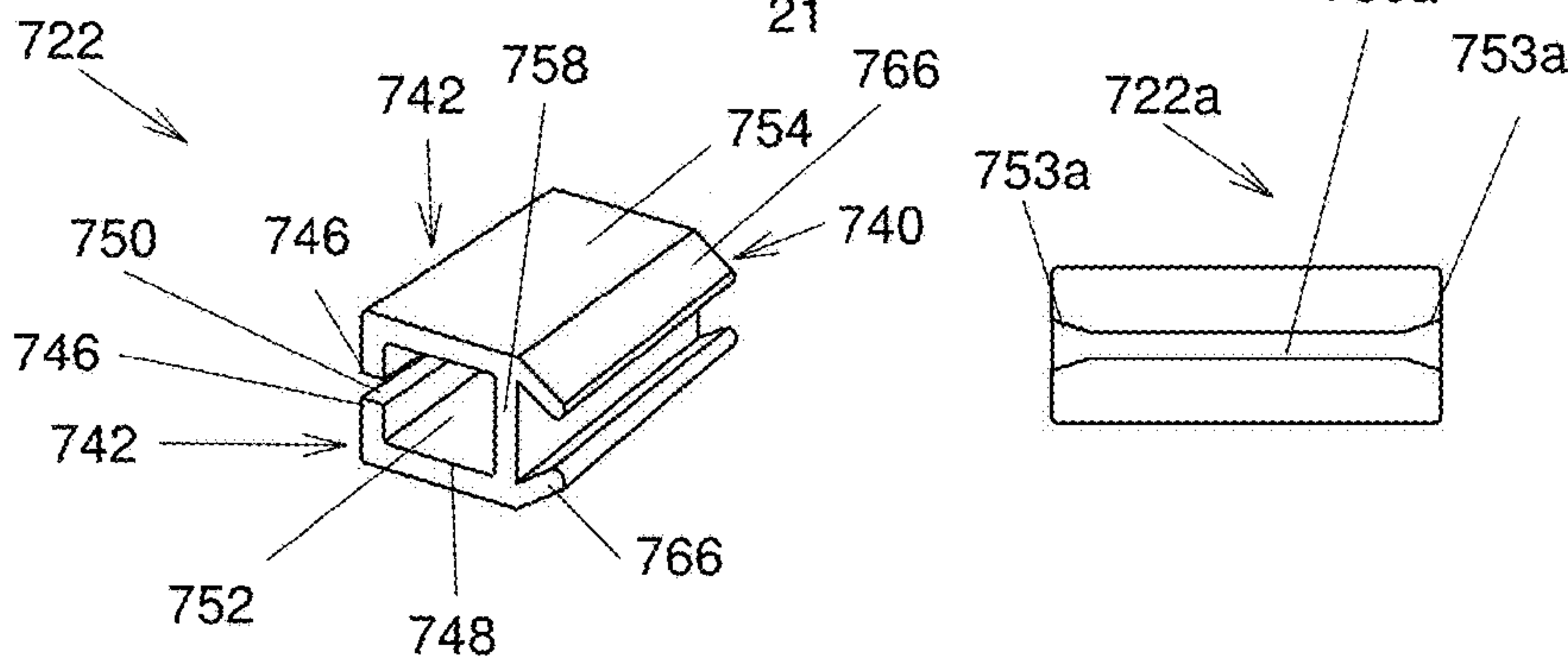
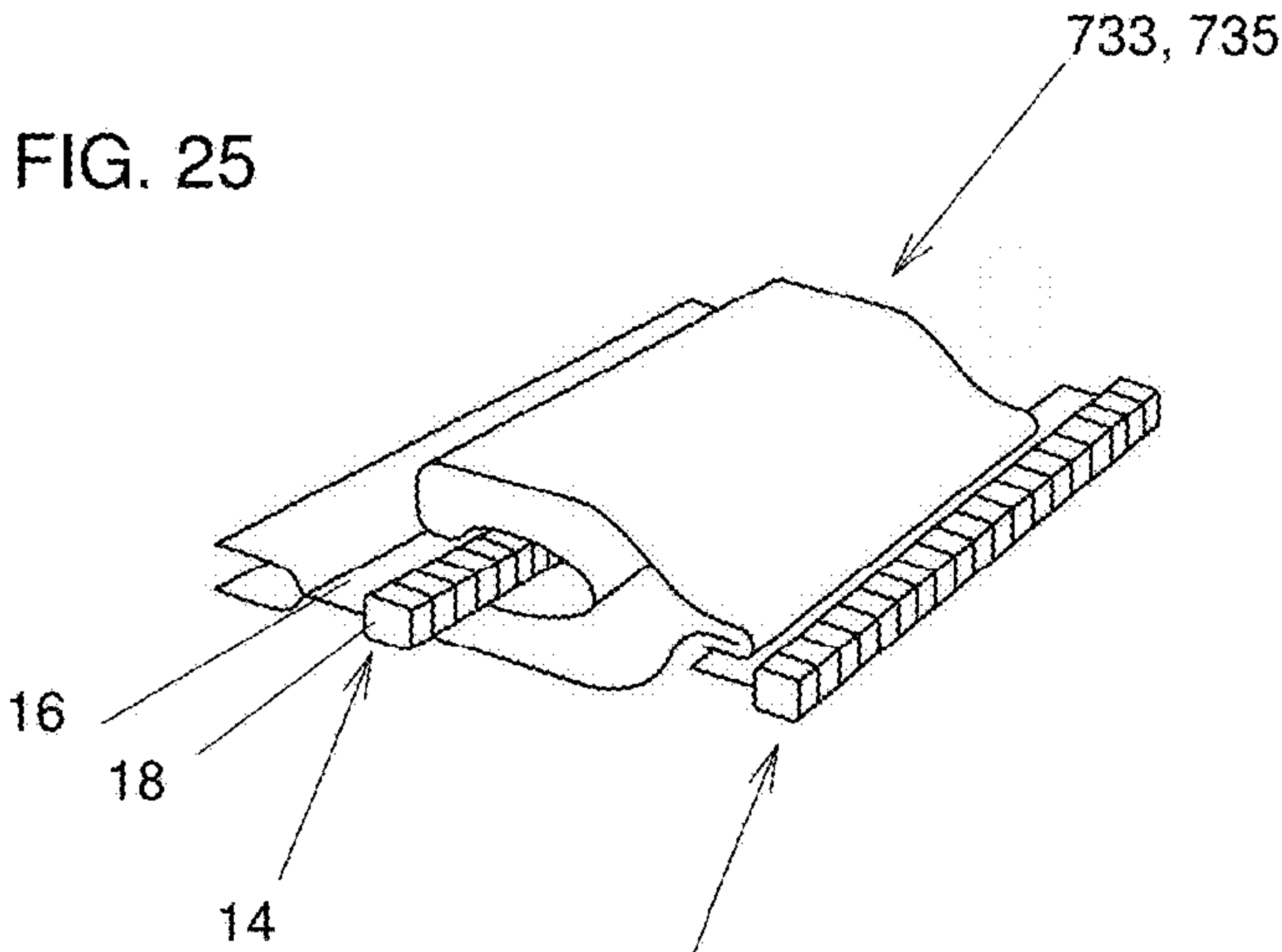


FIG. 23

FIG. 26

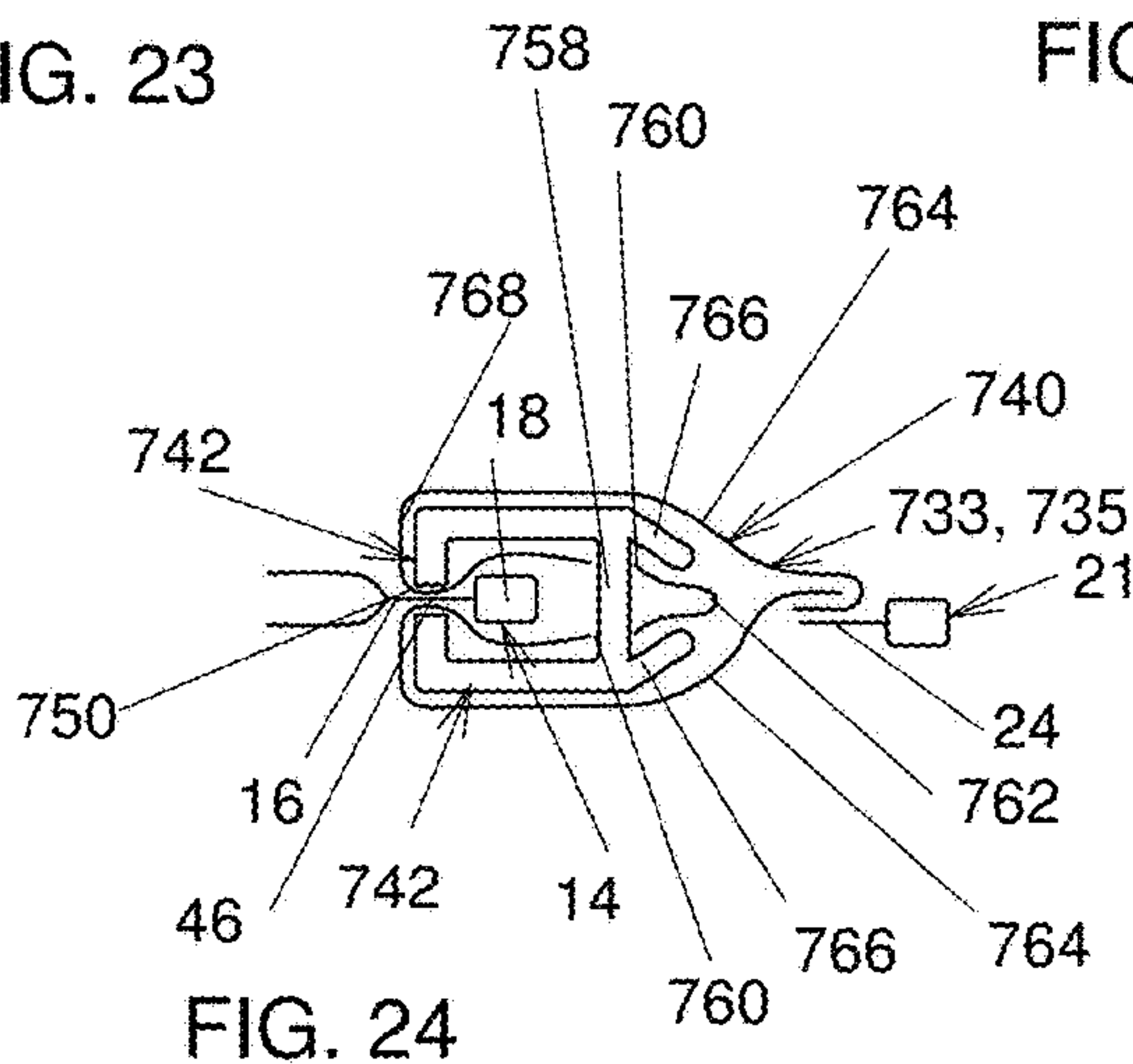


FIG. 24

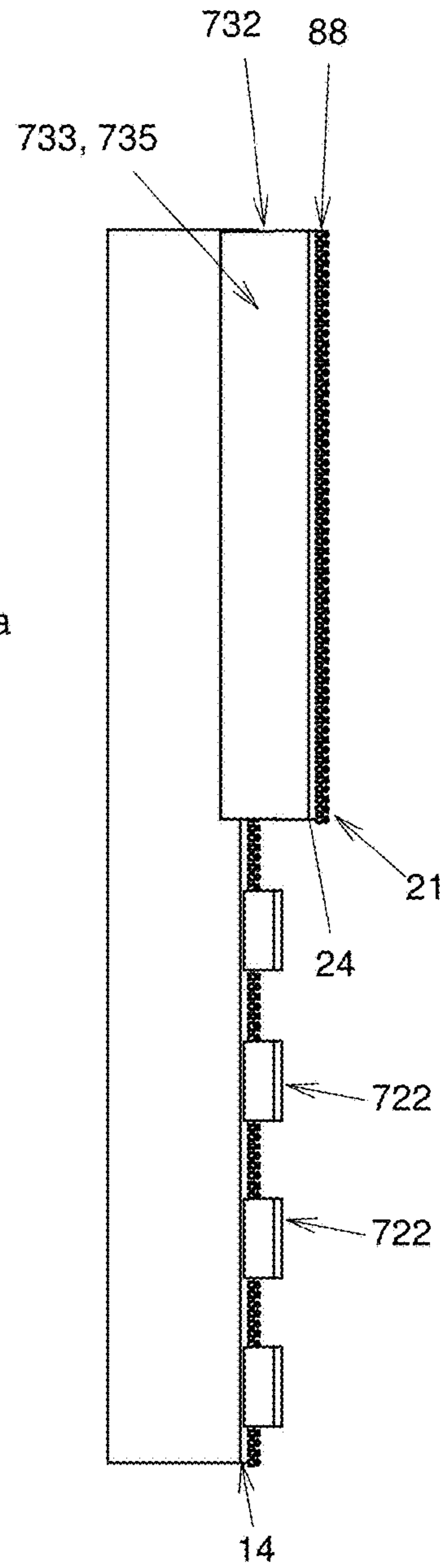


FIG. 22

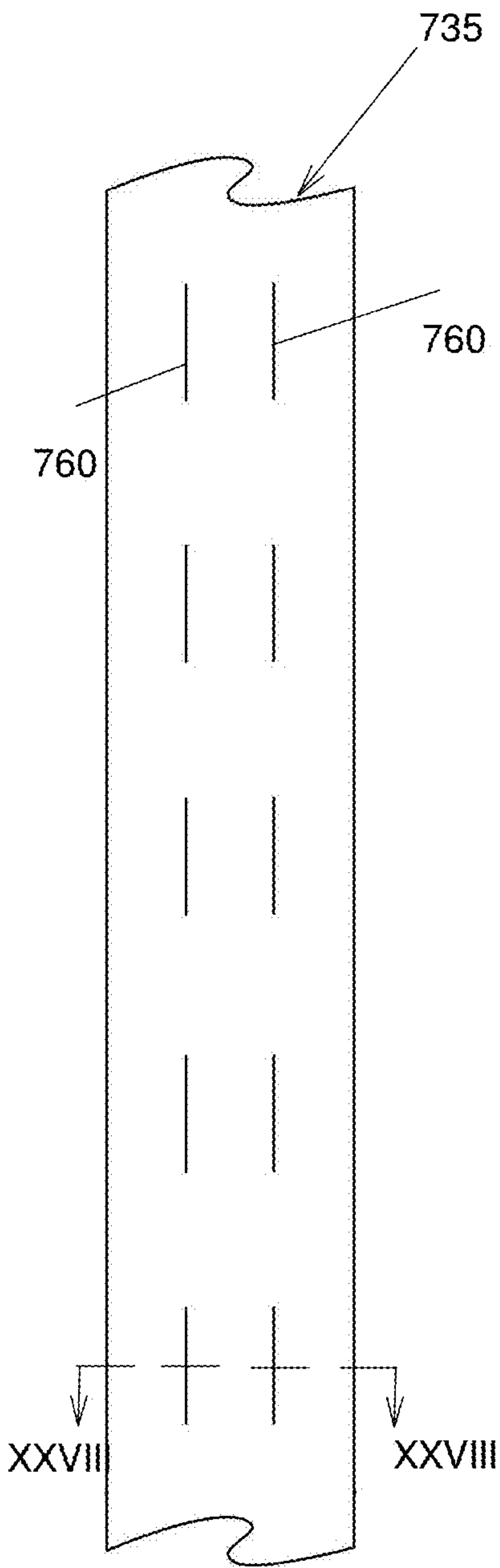


FIG. 27

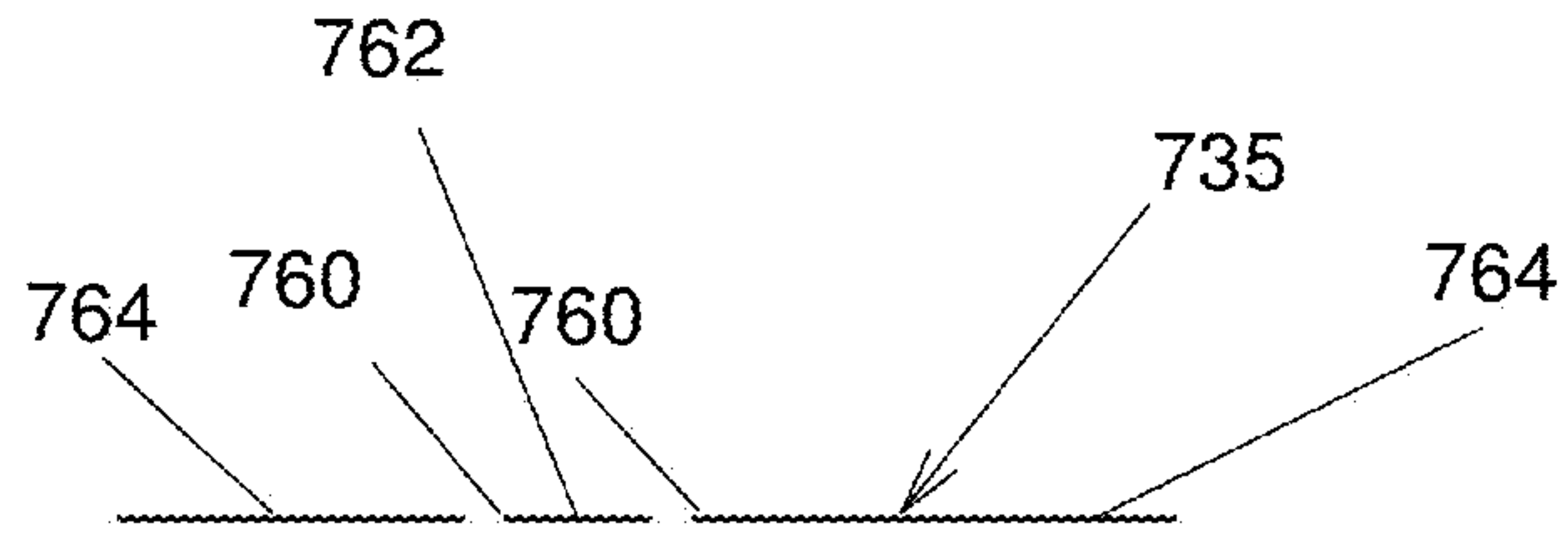


FIG. 28A

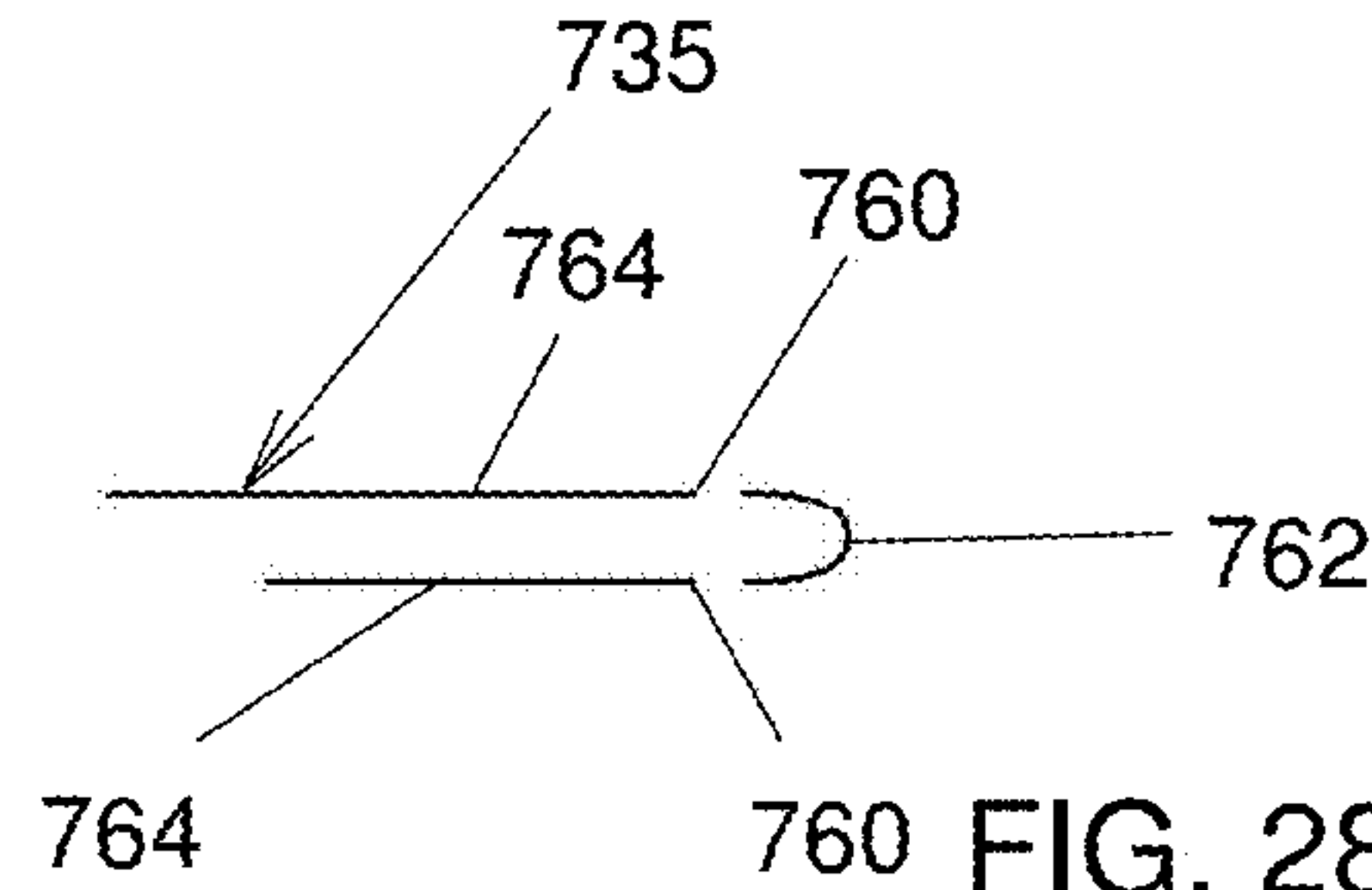


FIG. 28B

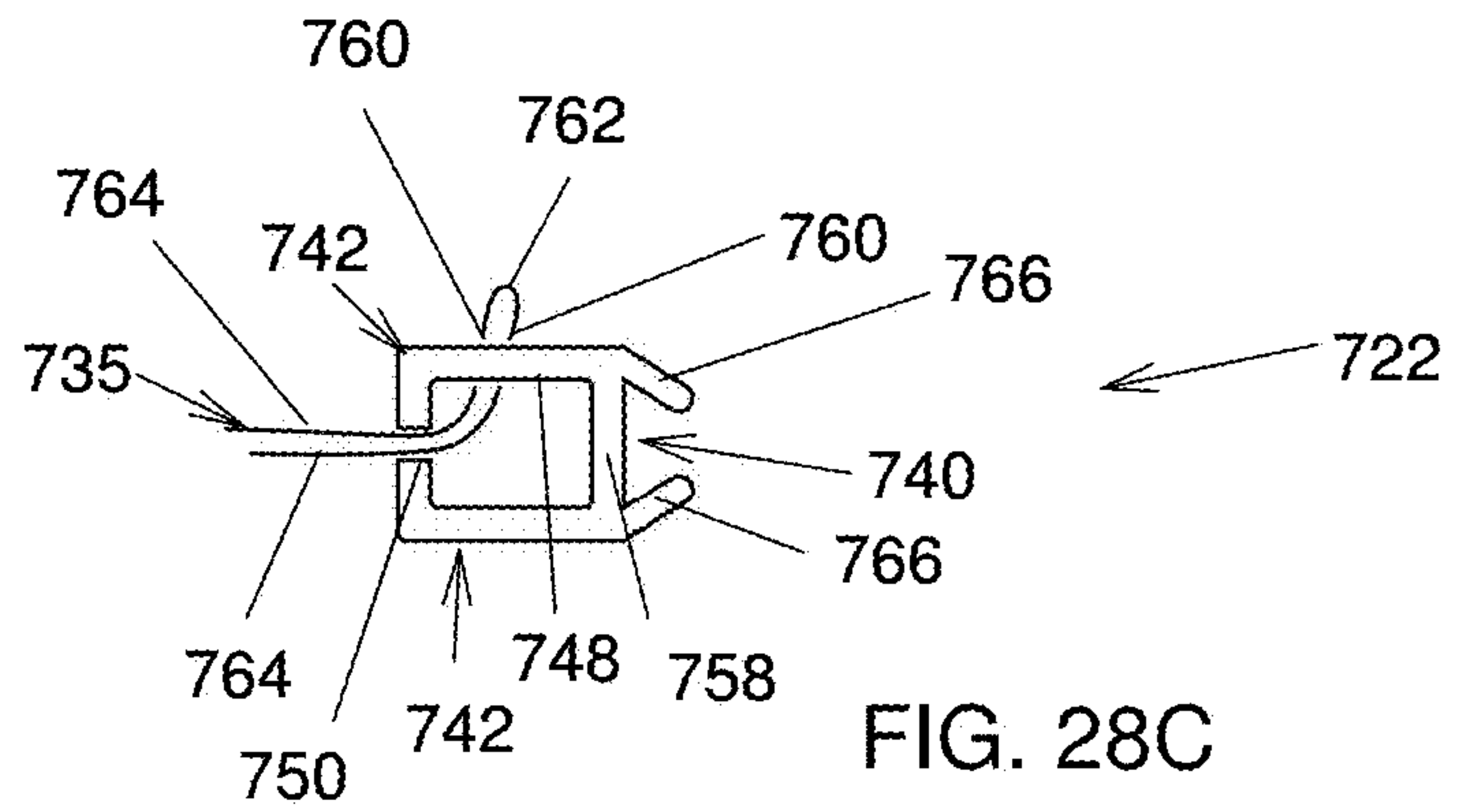


FIG. 28C

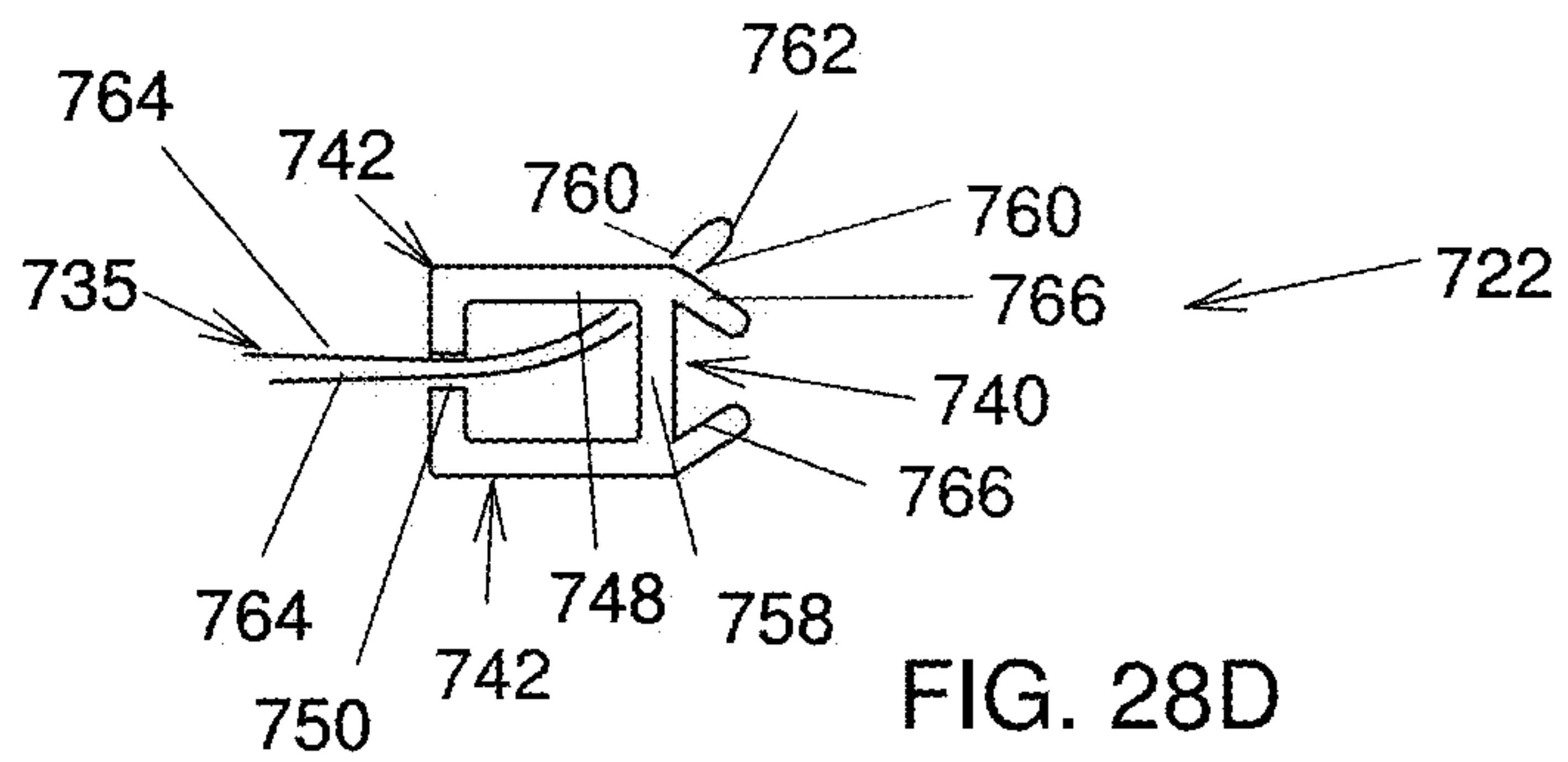


FIG. 28D

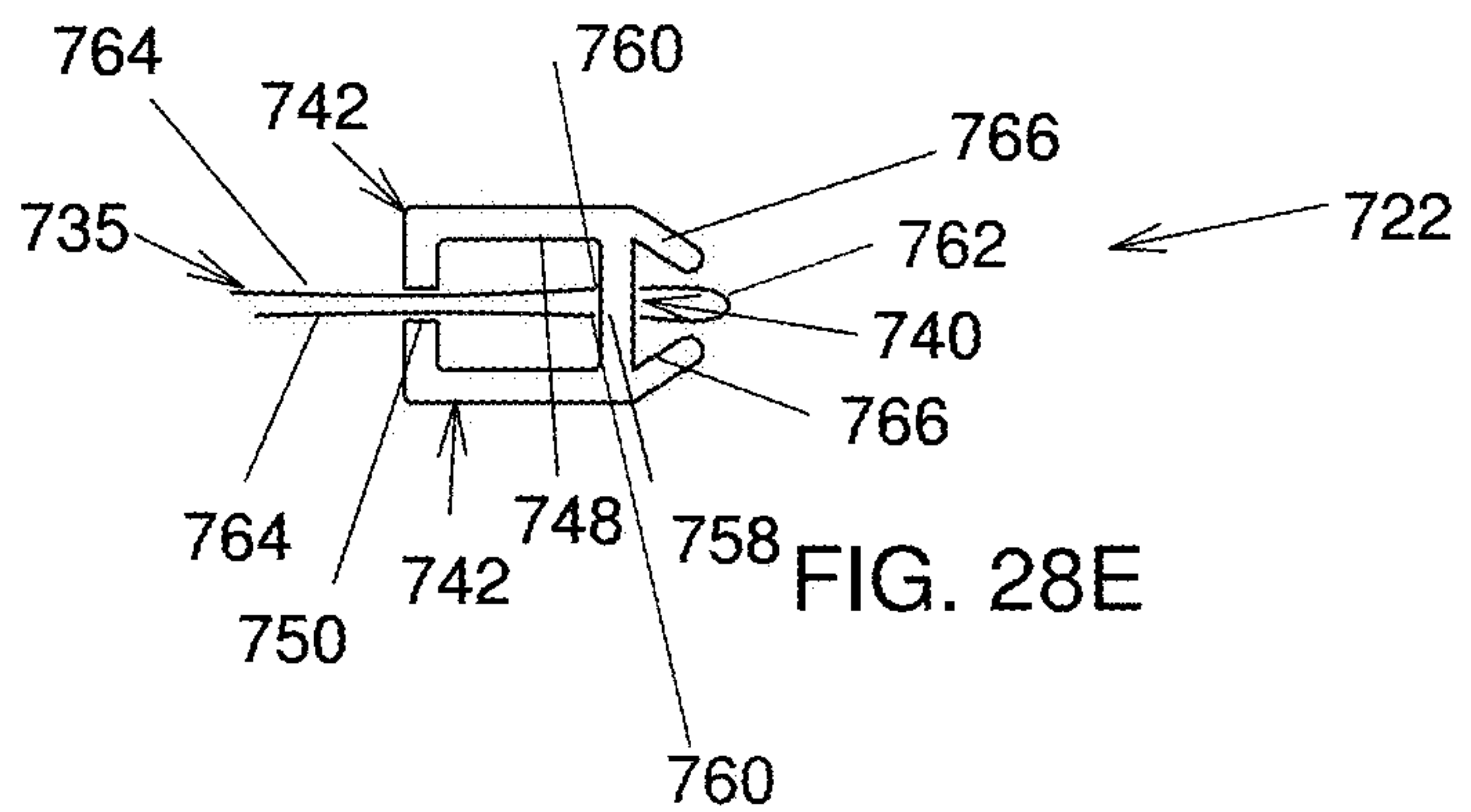


FIG. 28E

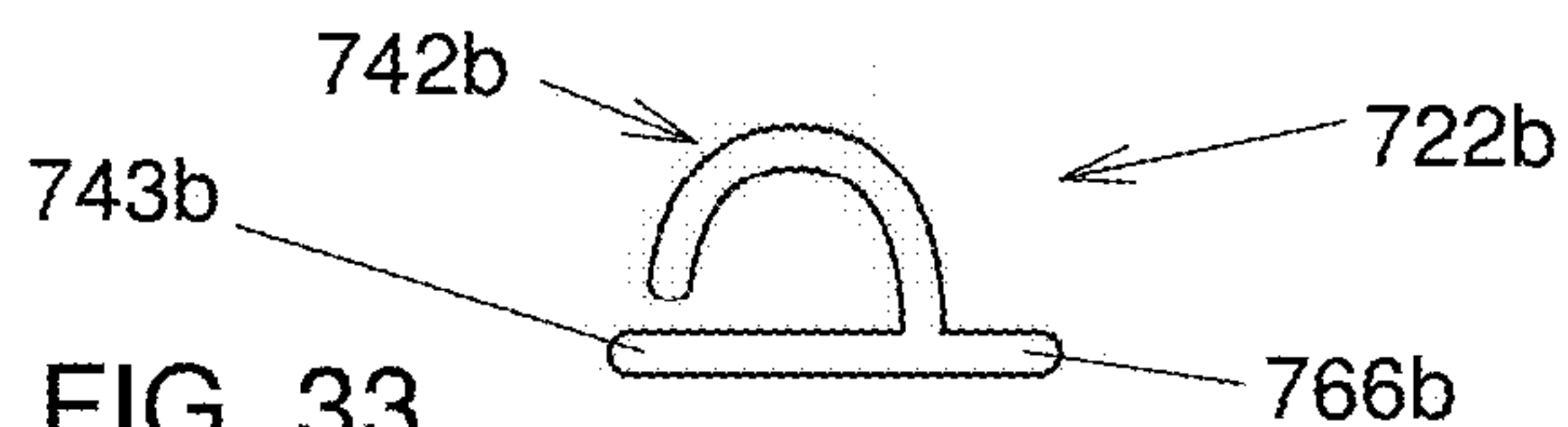


FIG. 33

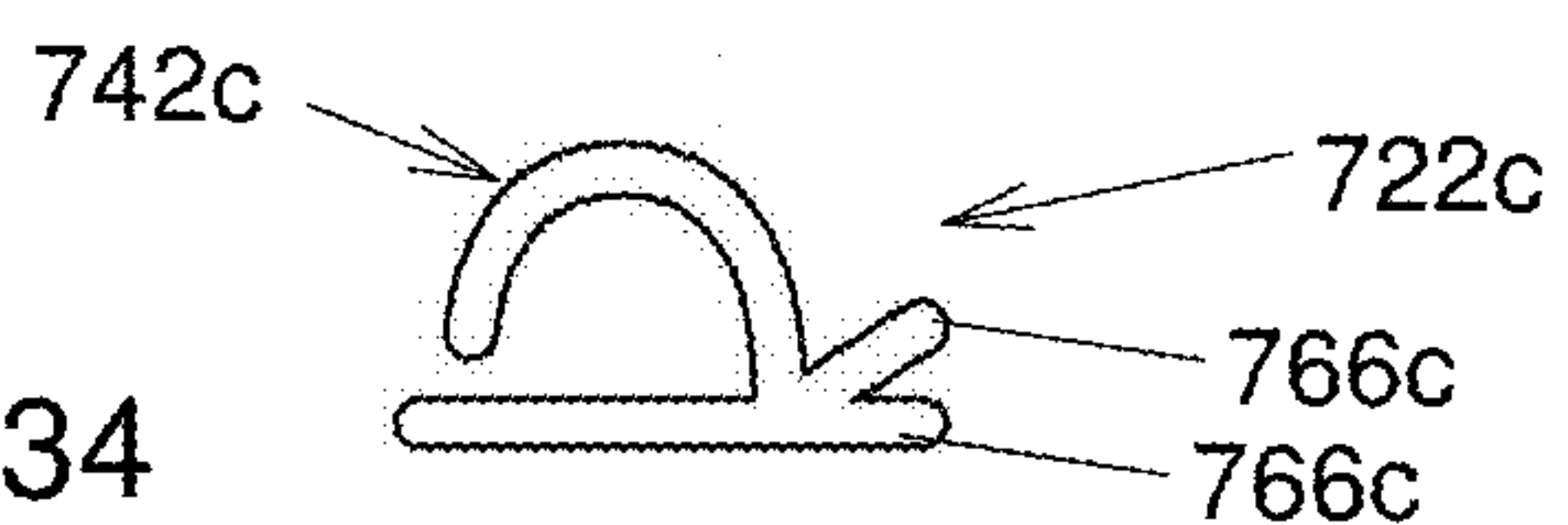


FIG. 34

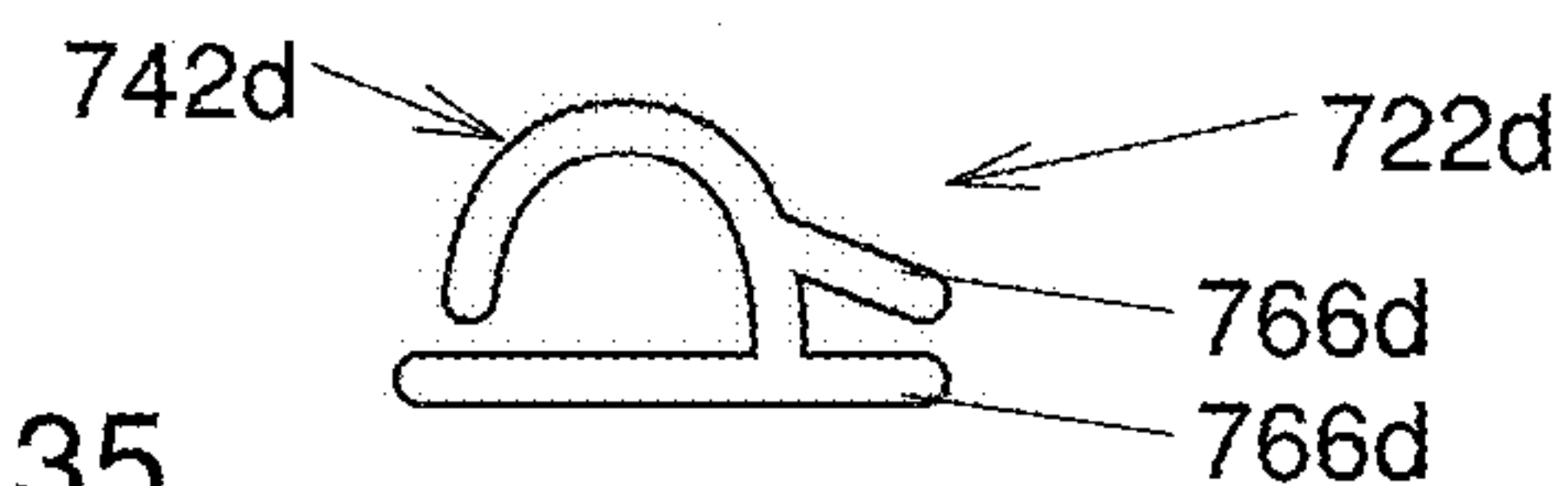


FIG. 35

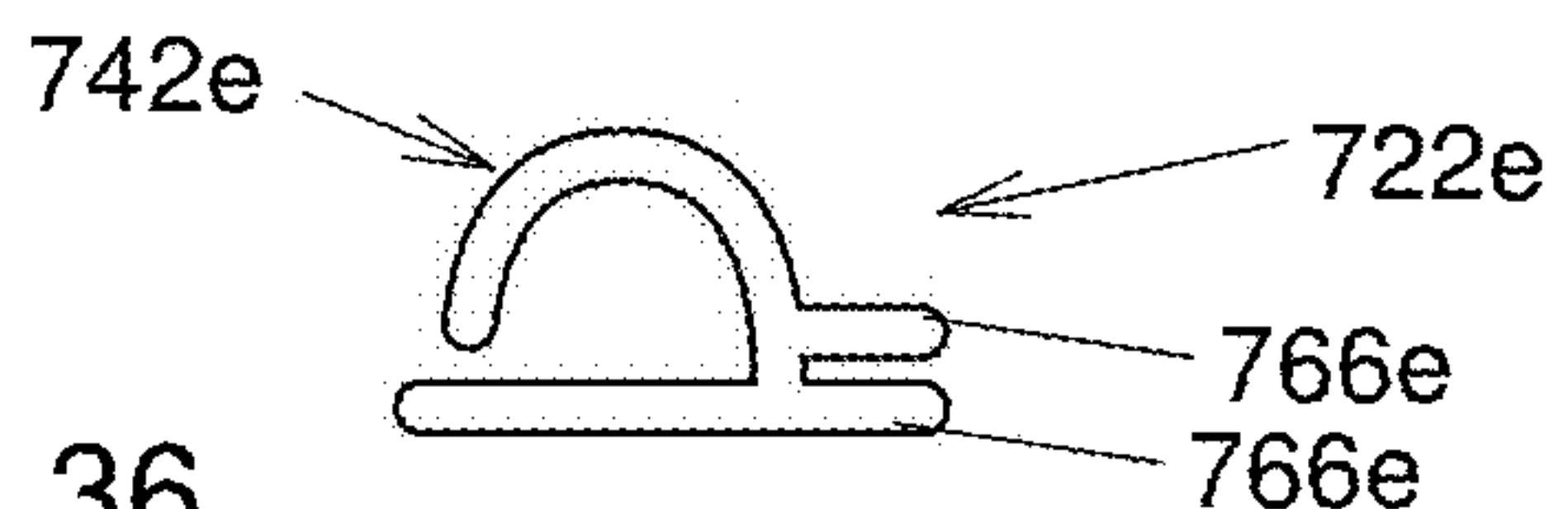


FIG. 36

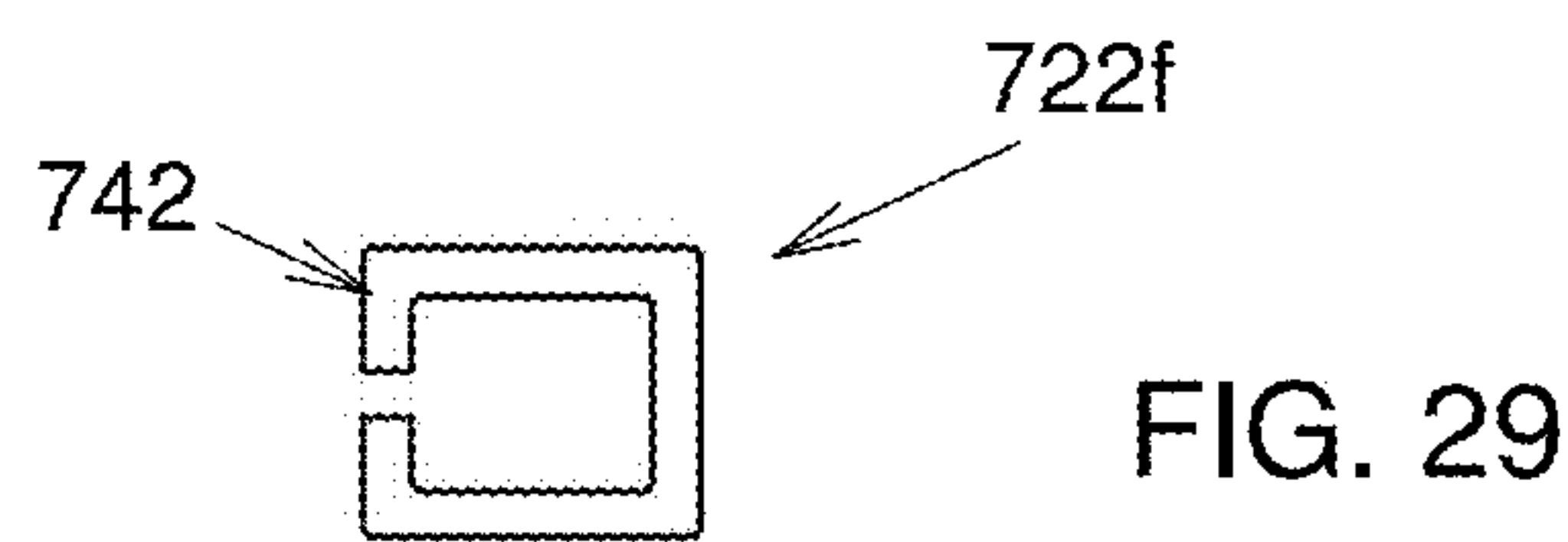


FIG. 29

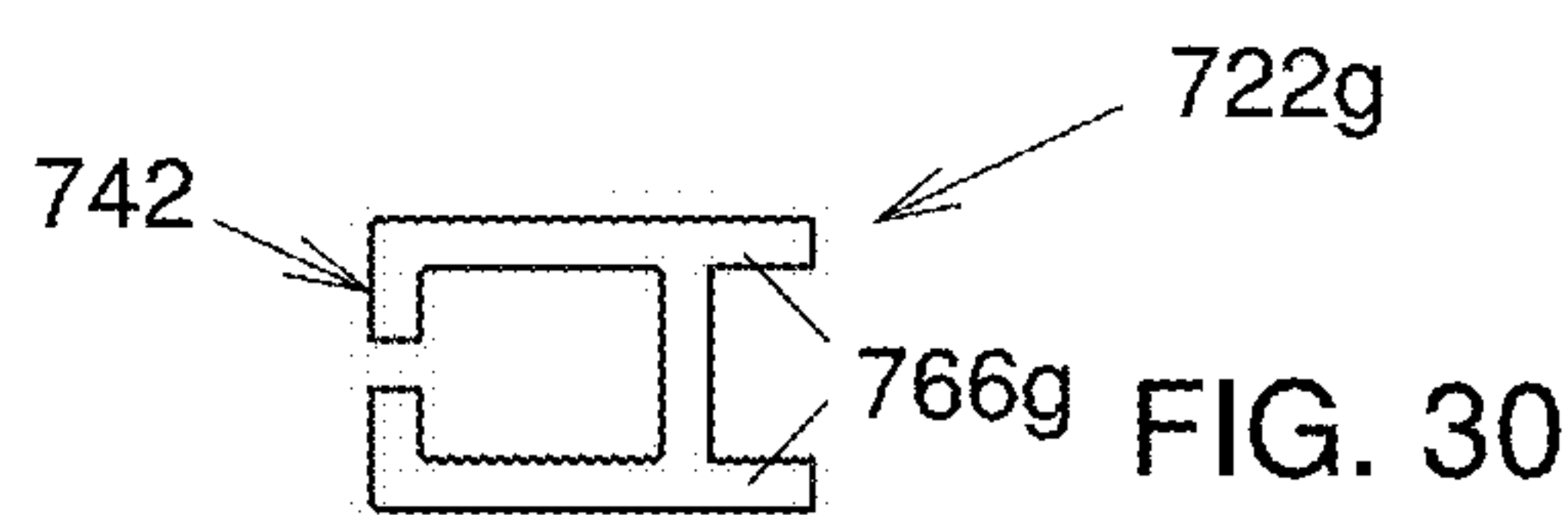


FIG. 30

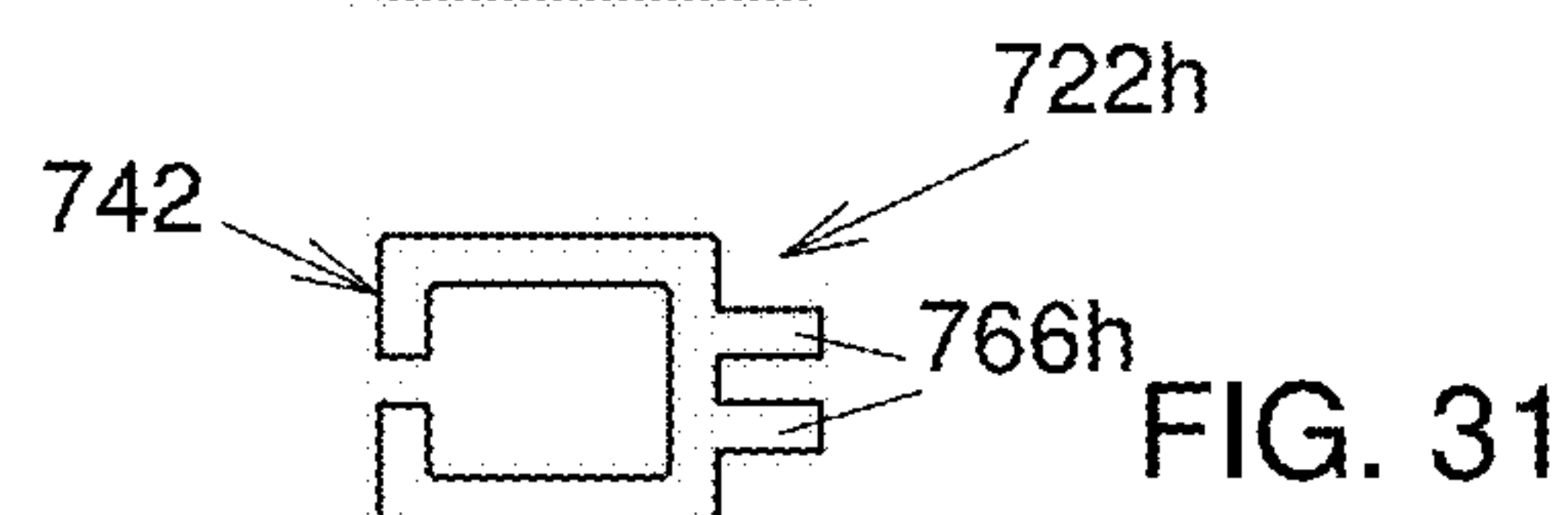


FIG. 31

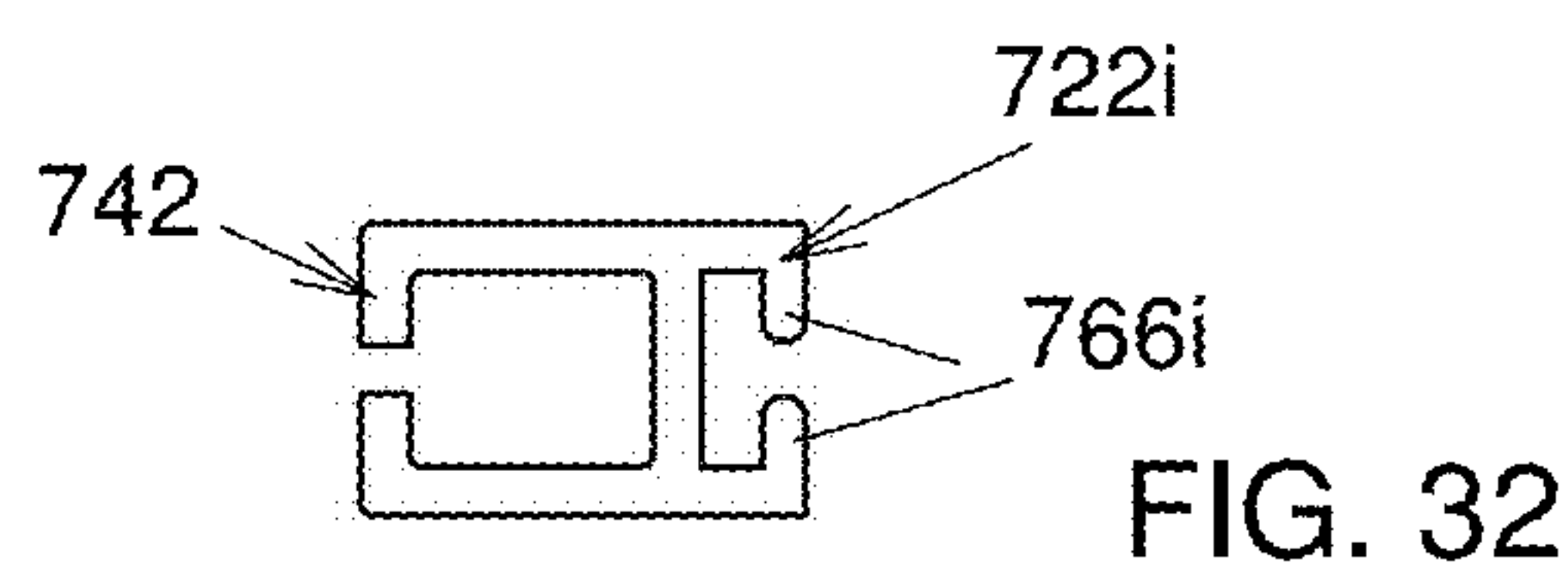


FIG. 32

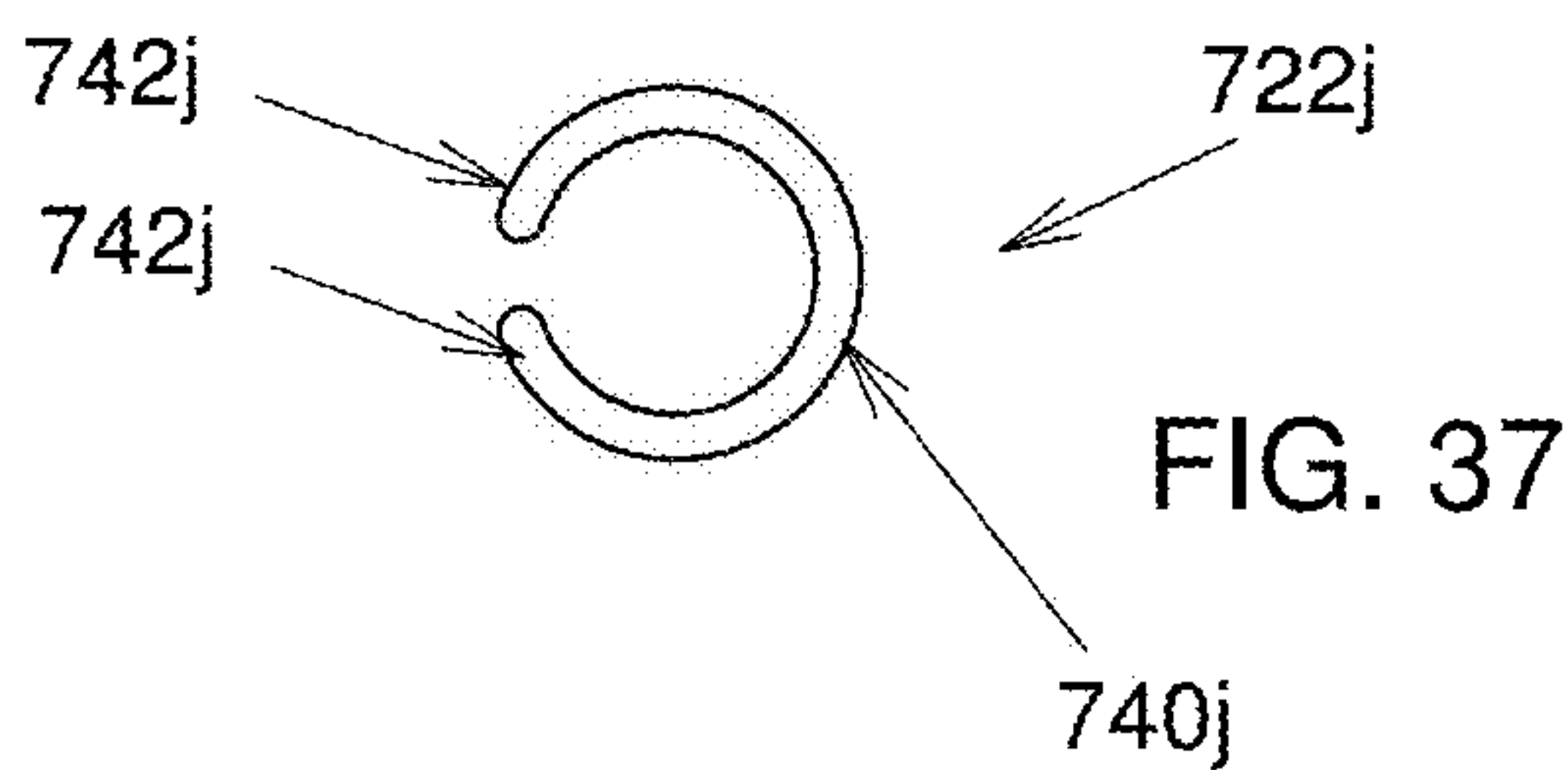


FIG. 37

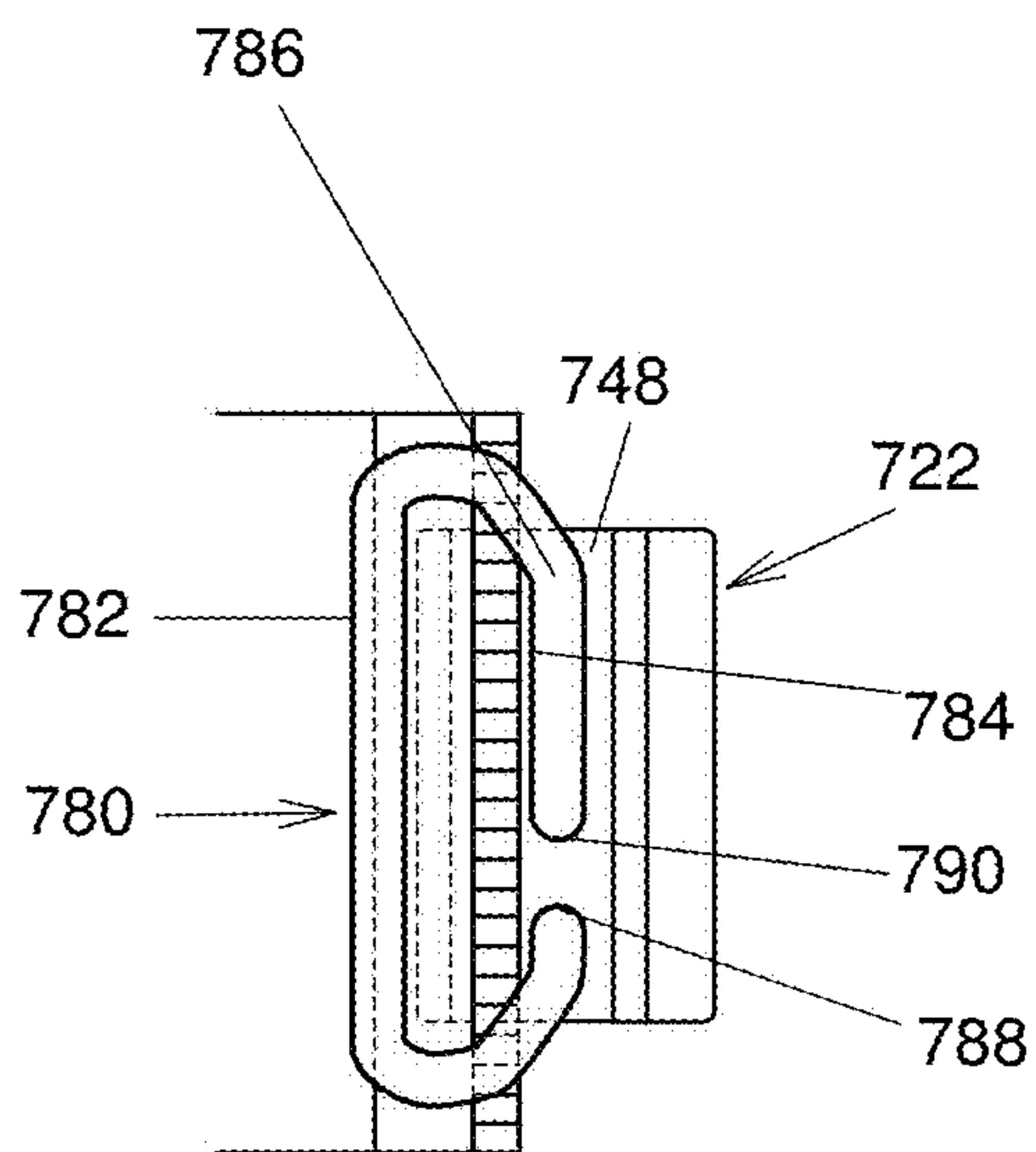


FIG. 38

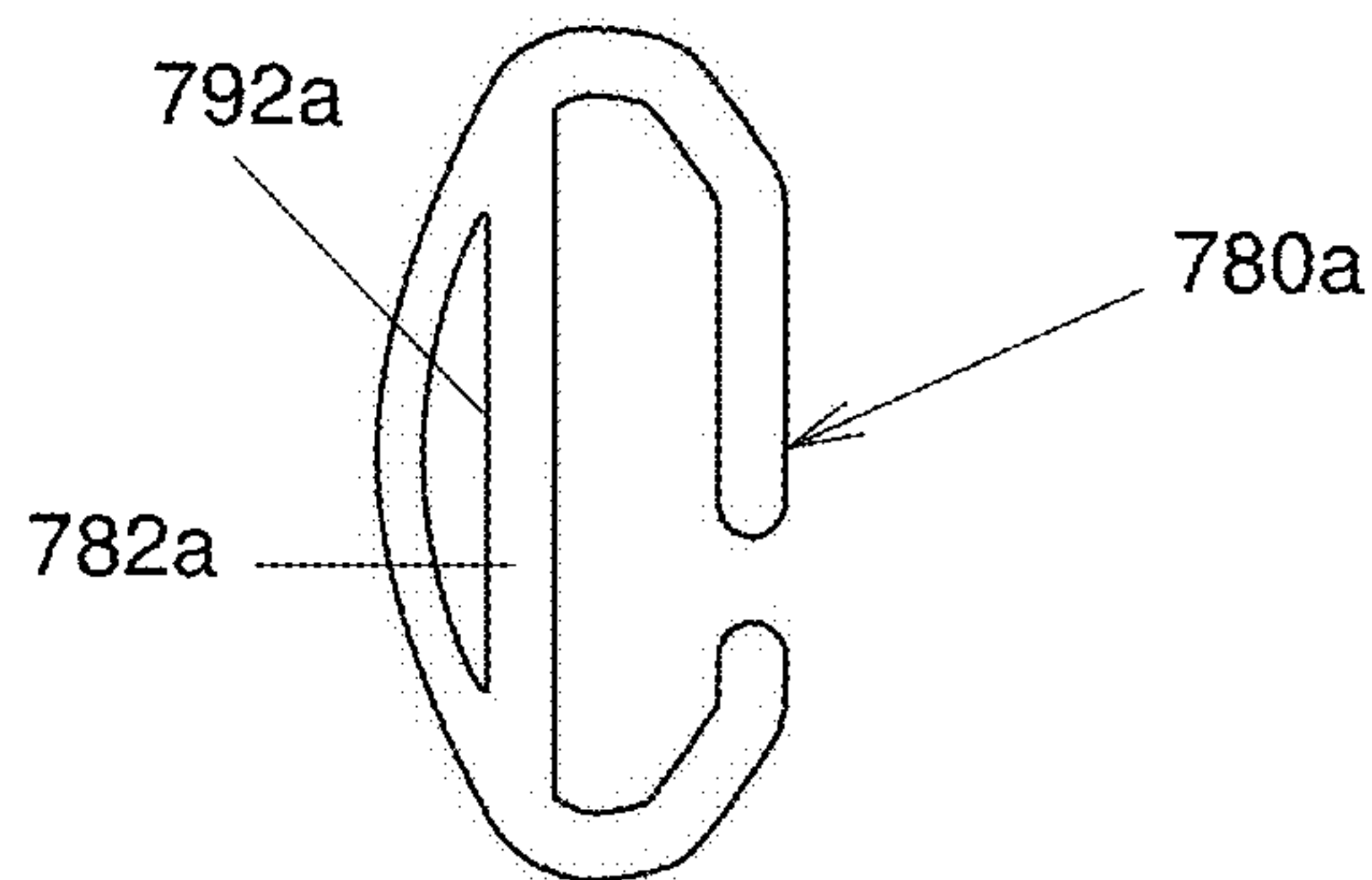
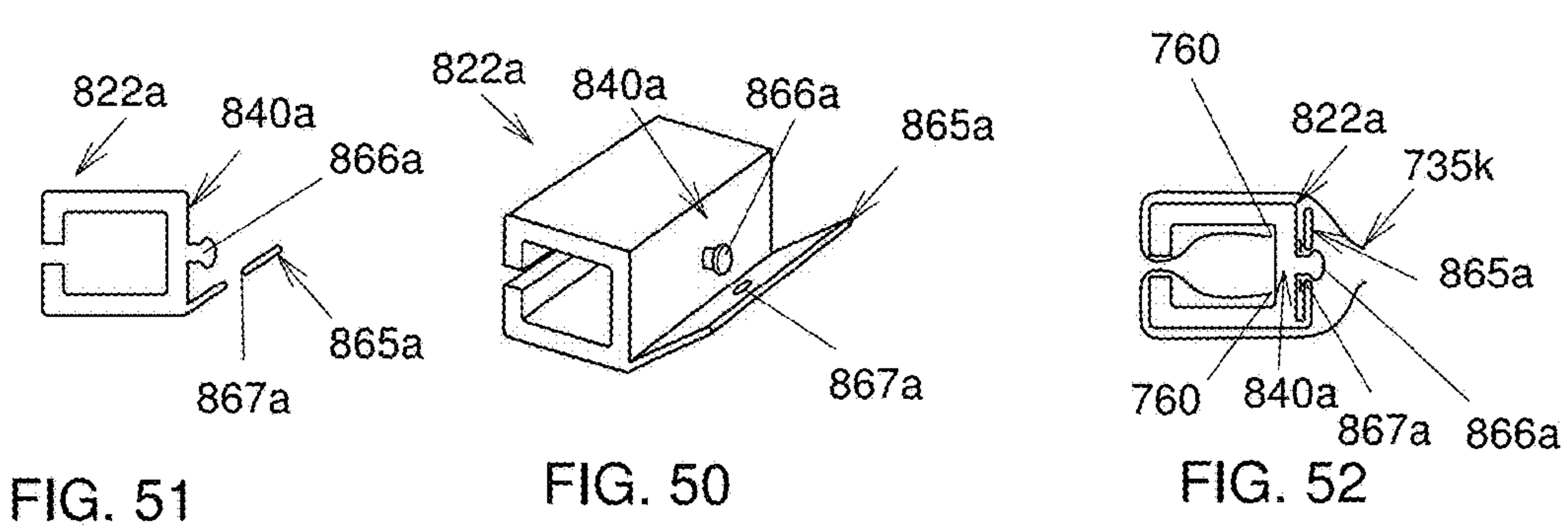
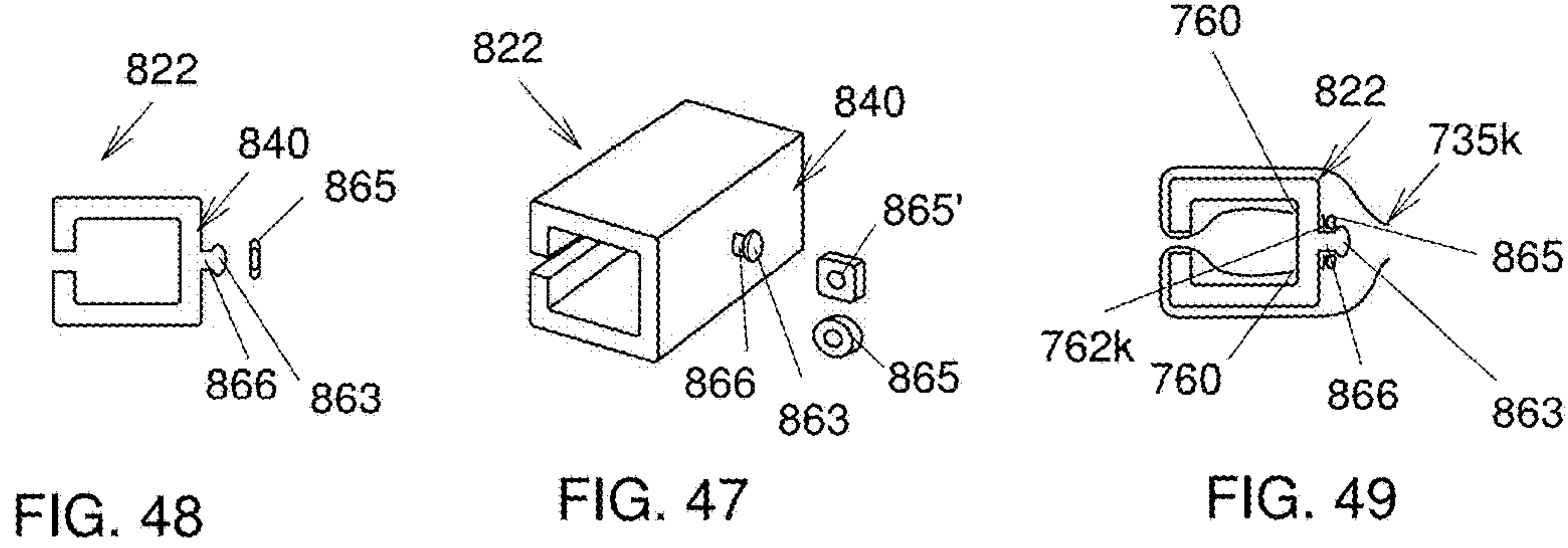
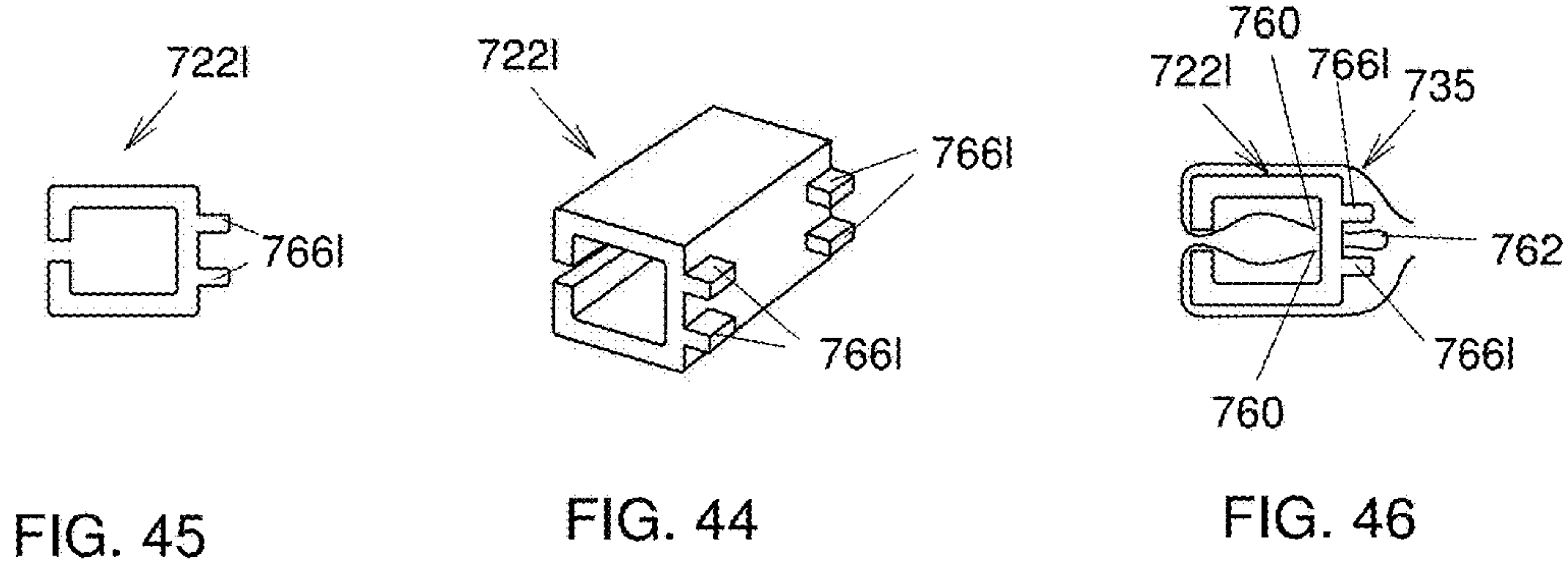
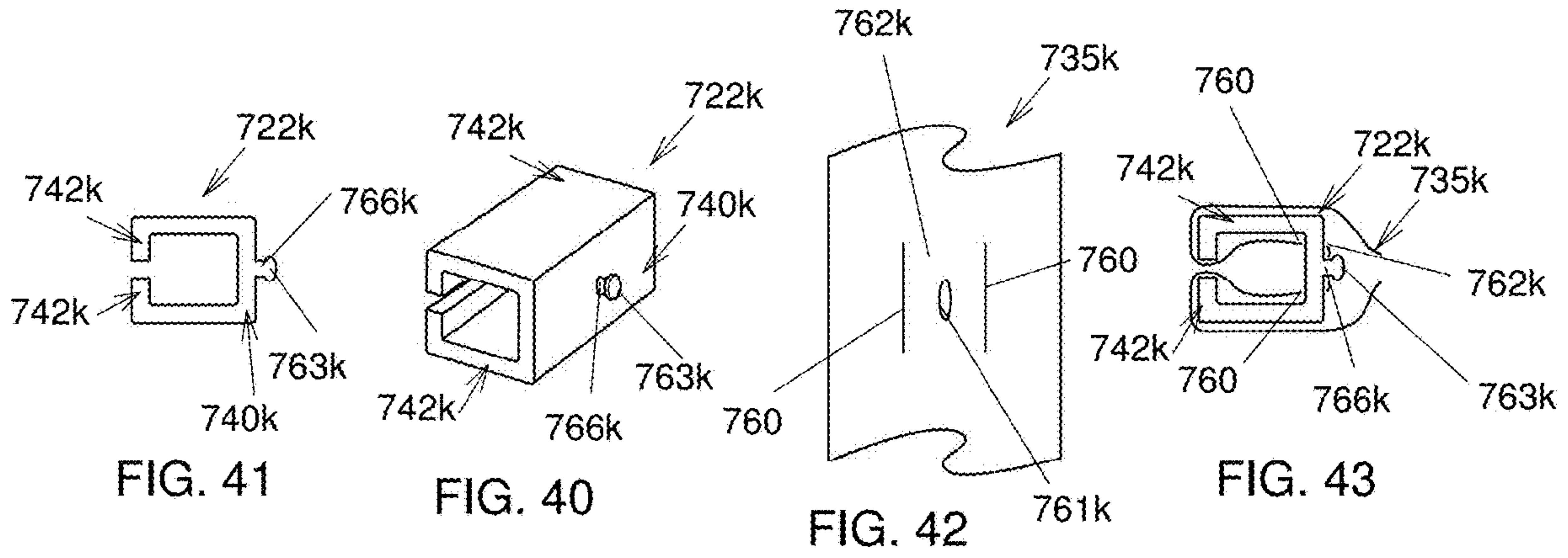


FIG. 39



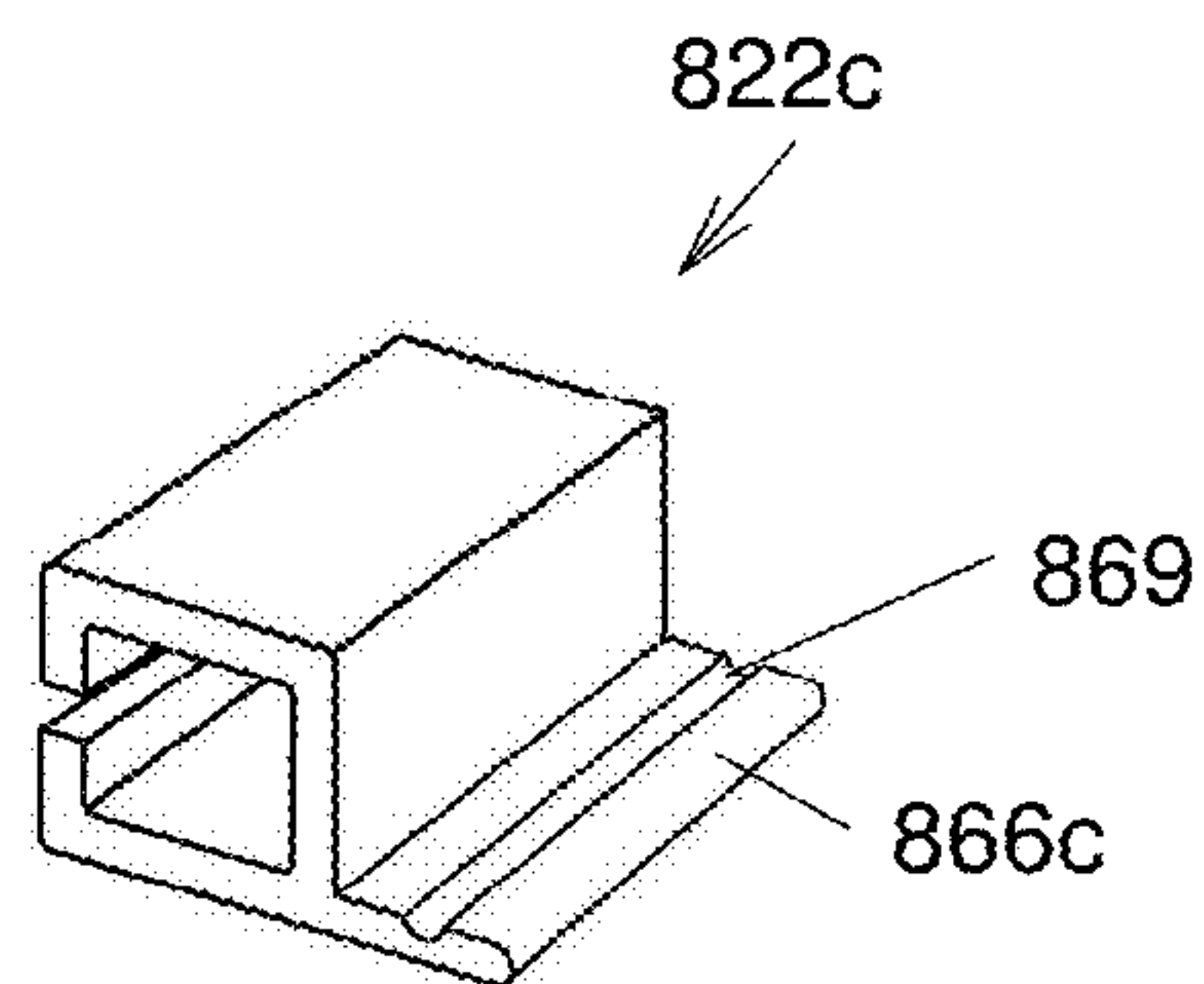


FIG. 55

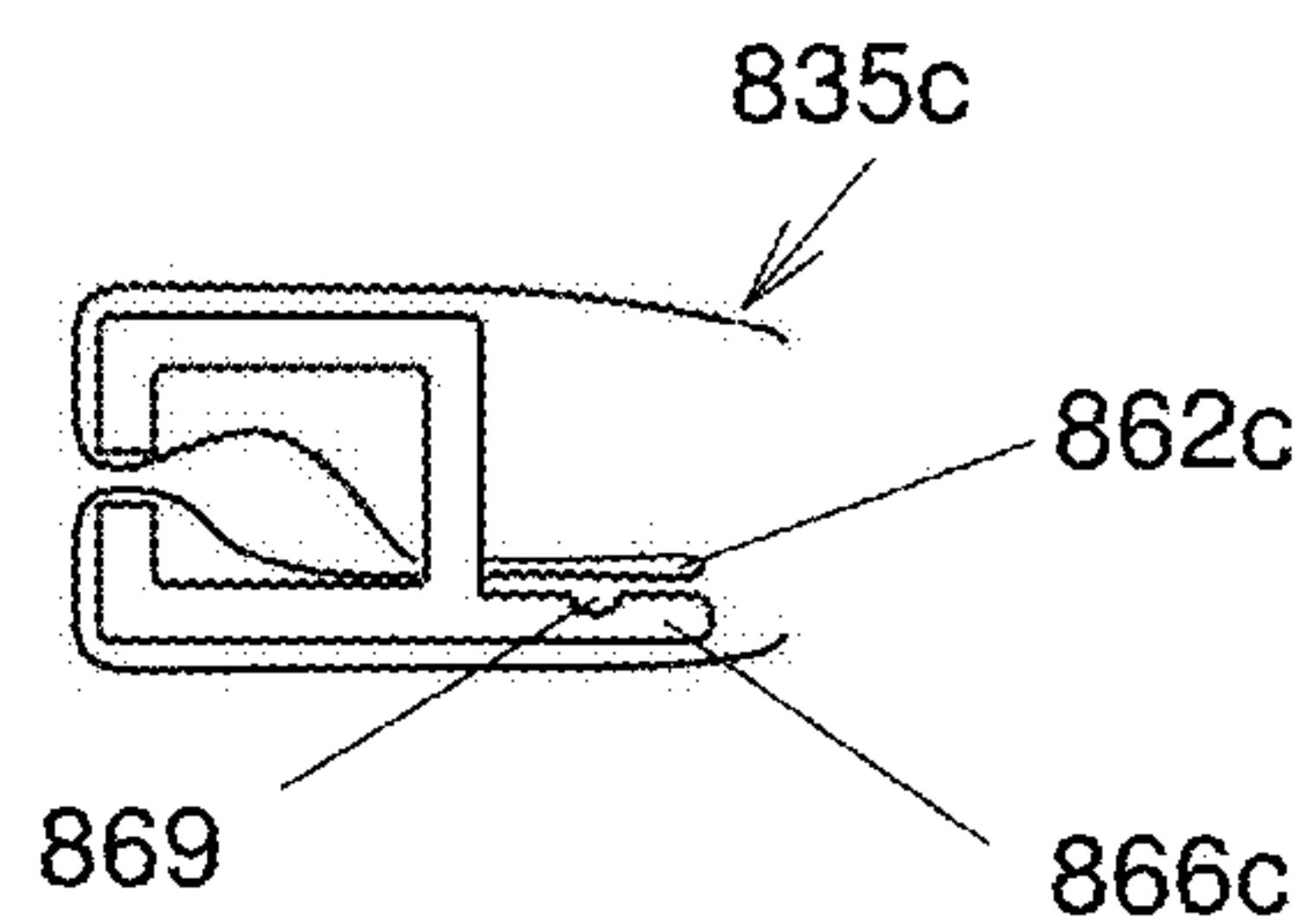


FIG. 56

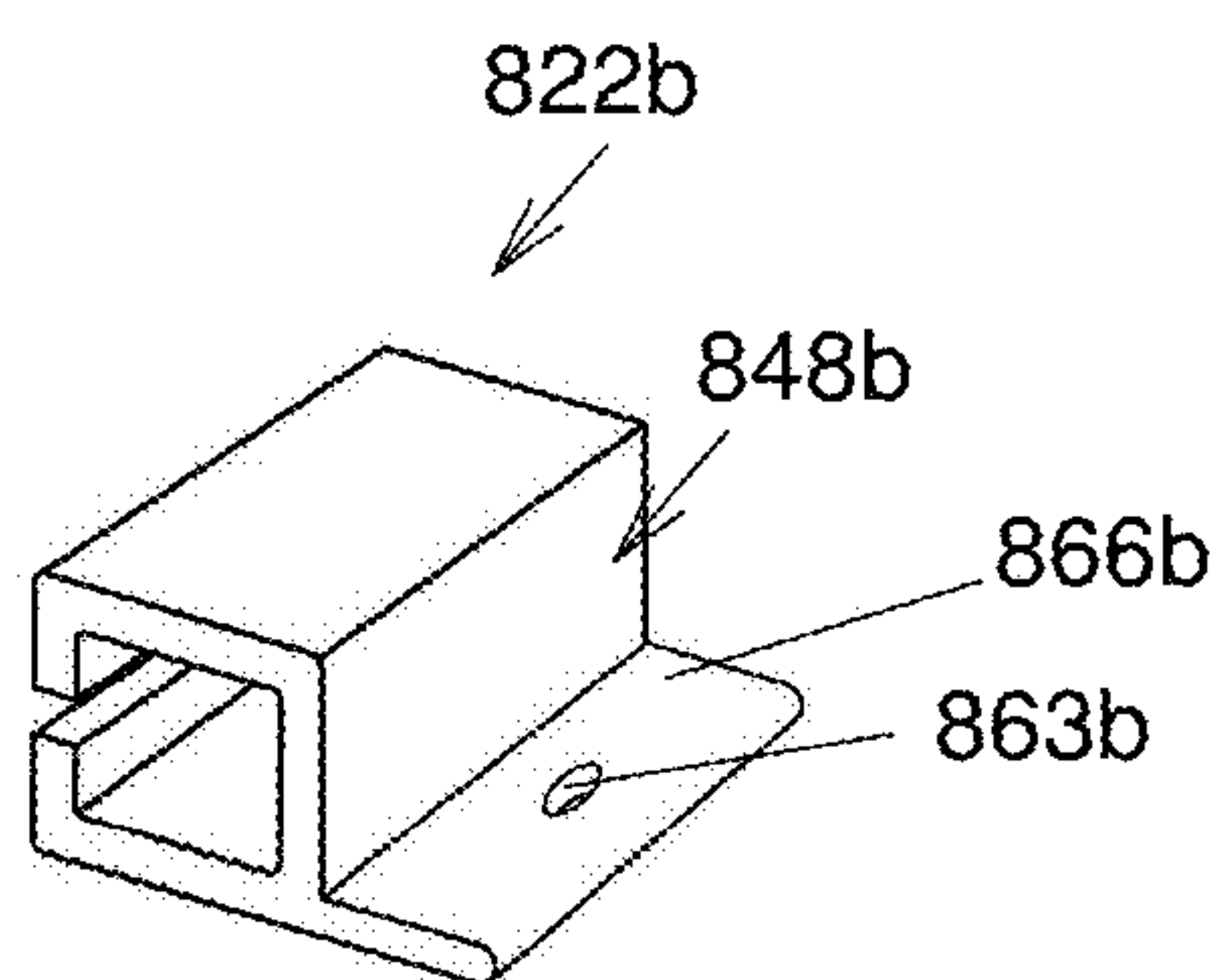


FIG. 53

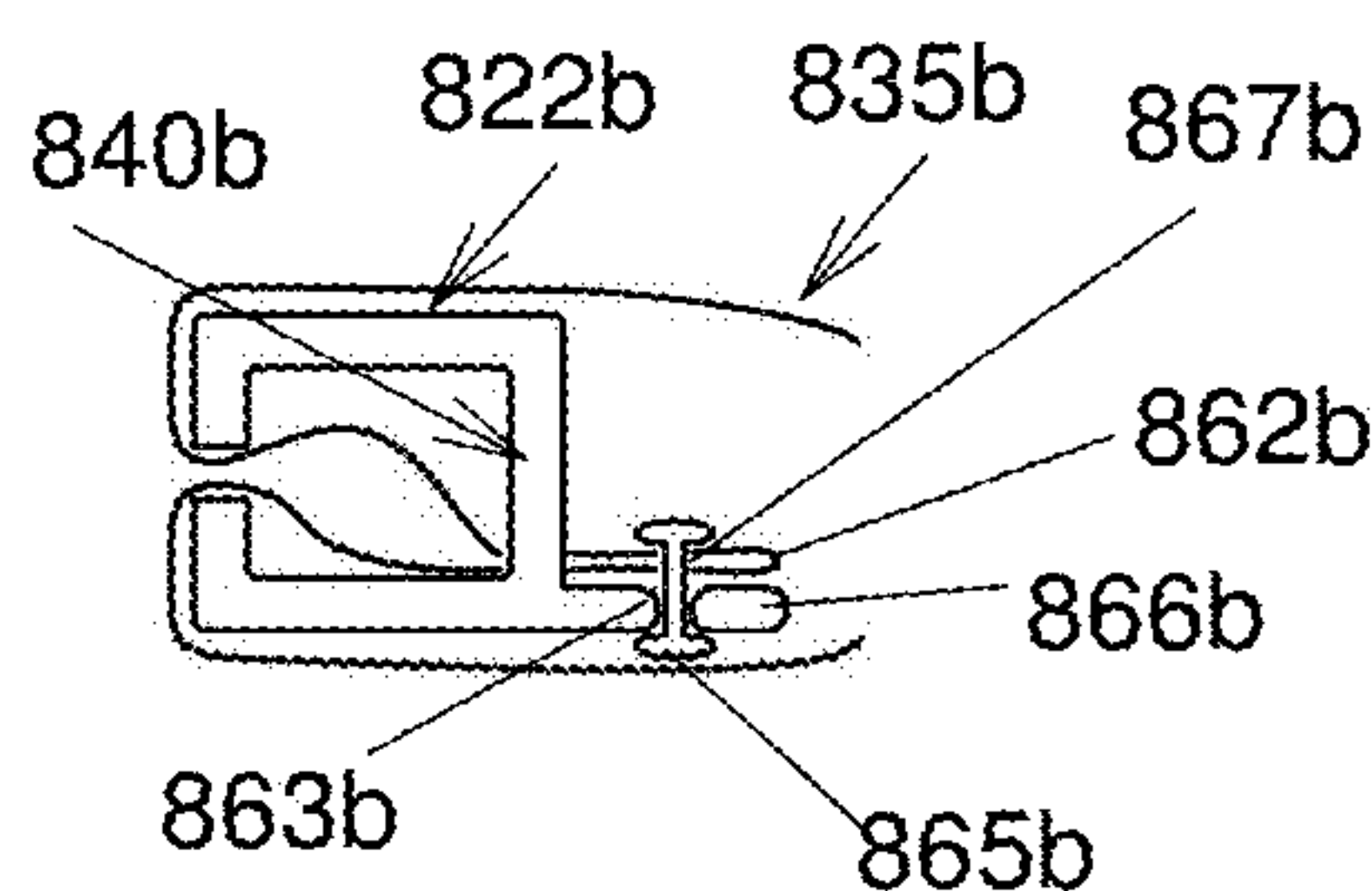


FIG. 54

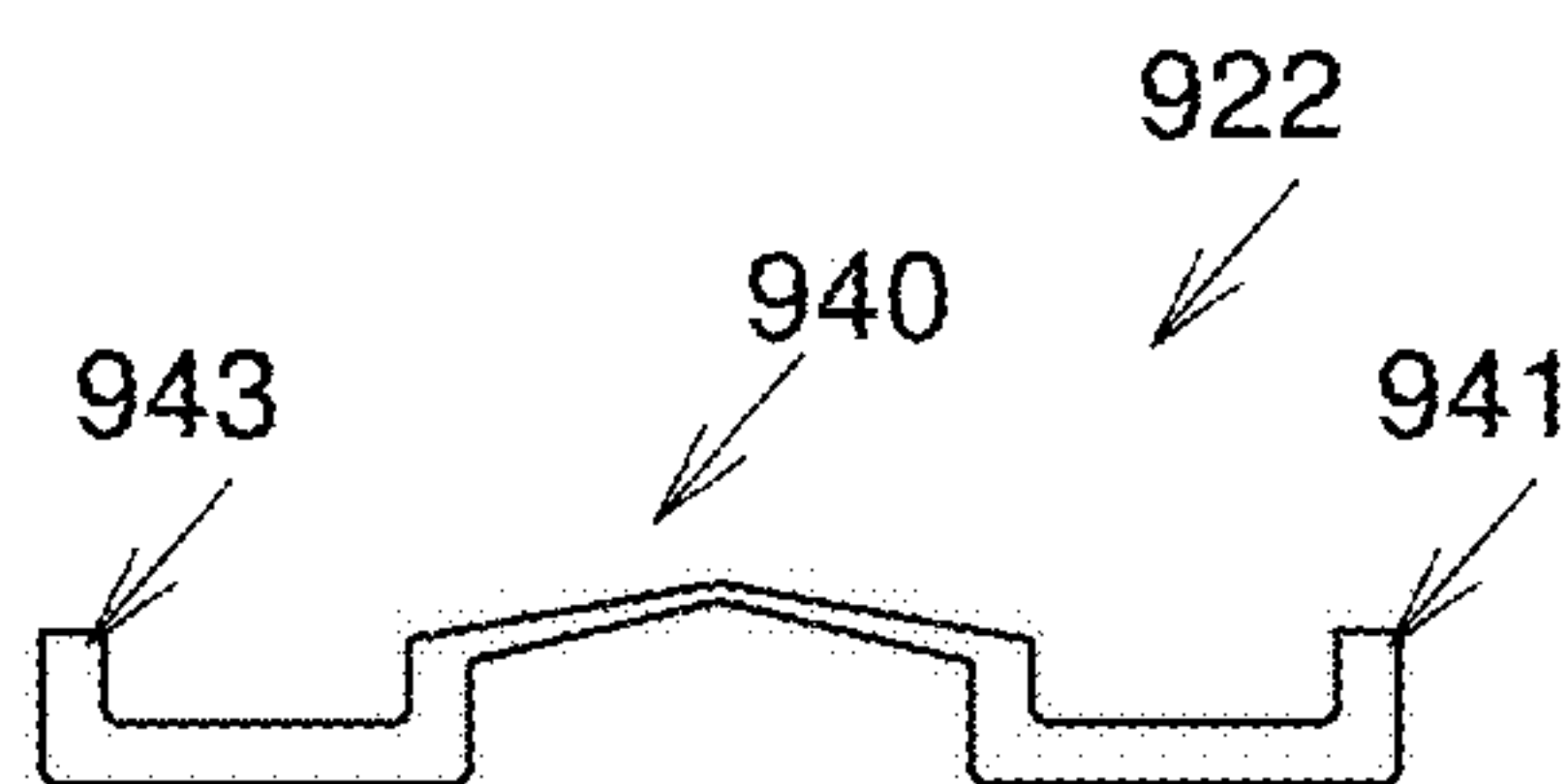


FIG. 77

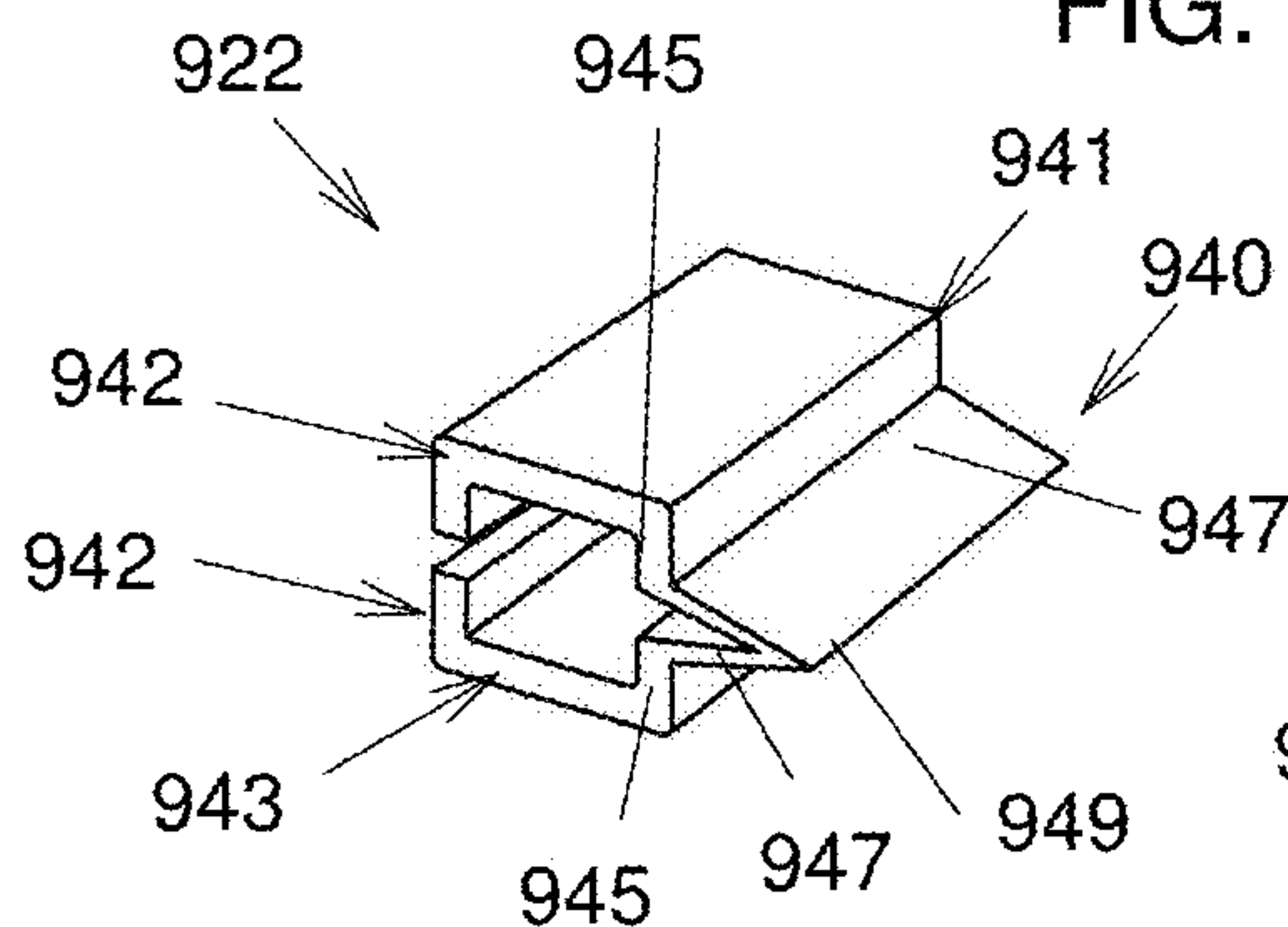


FIG. 76

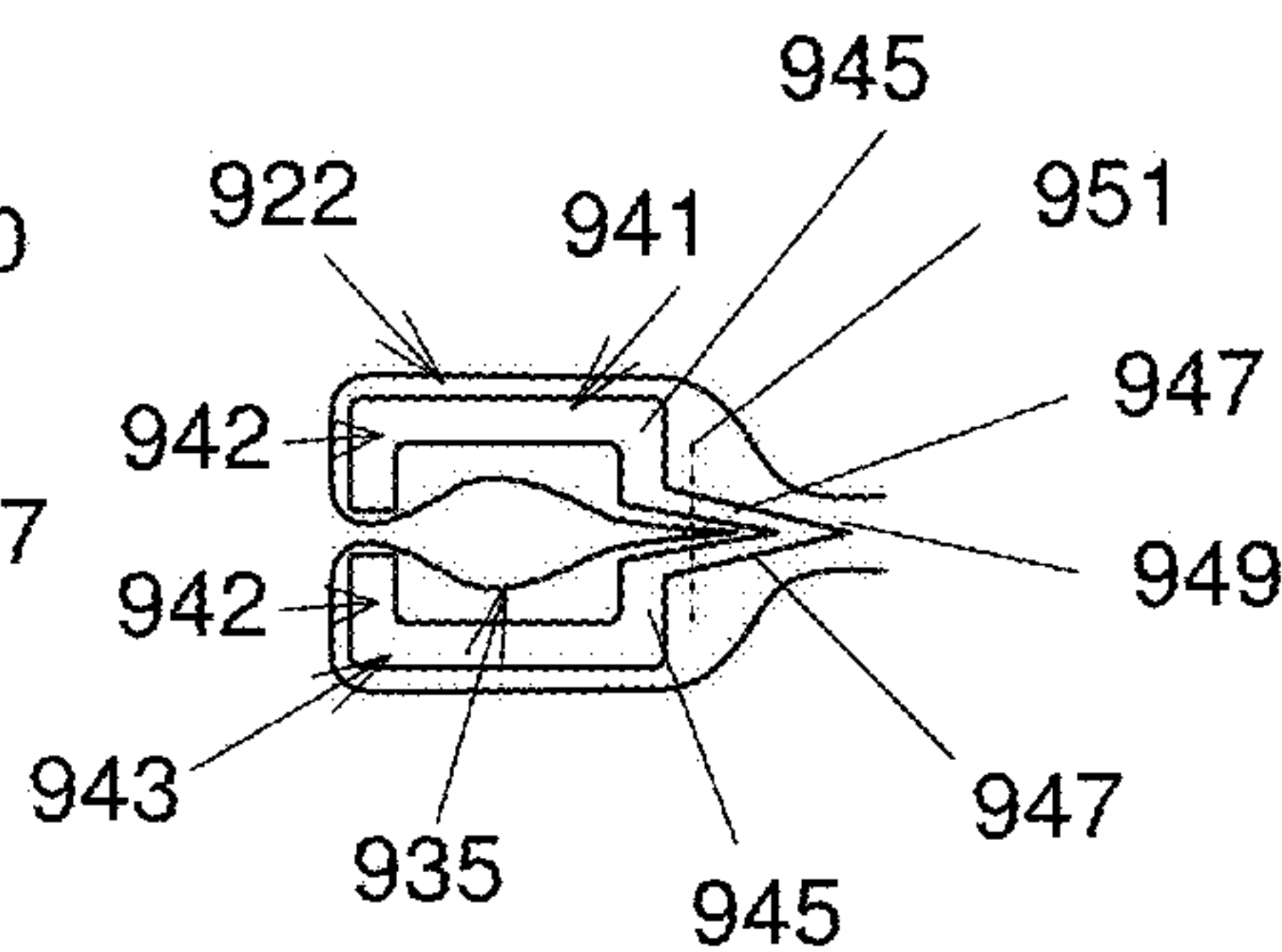


FIG. 78

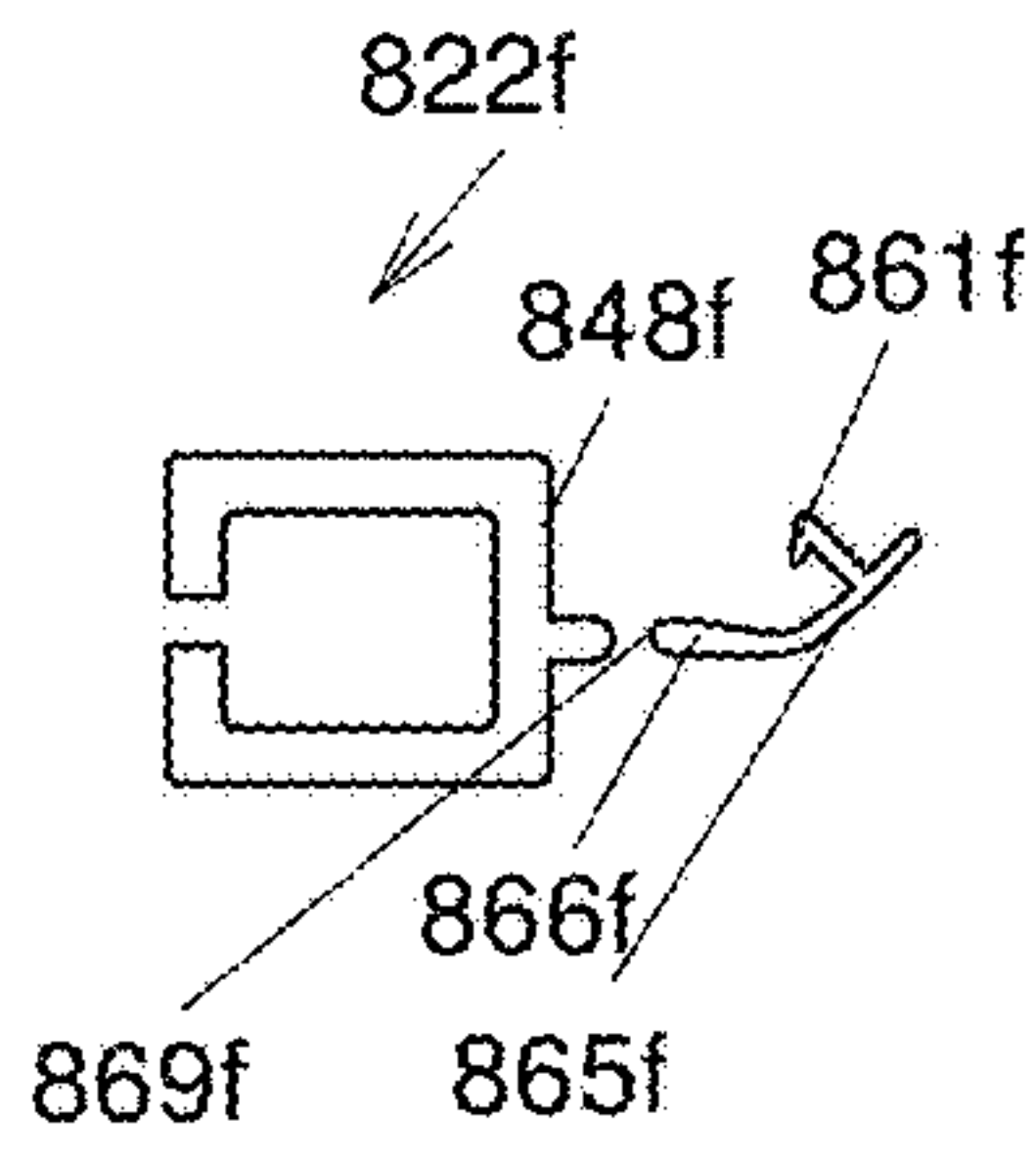


FIG. 66

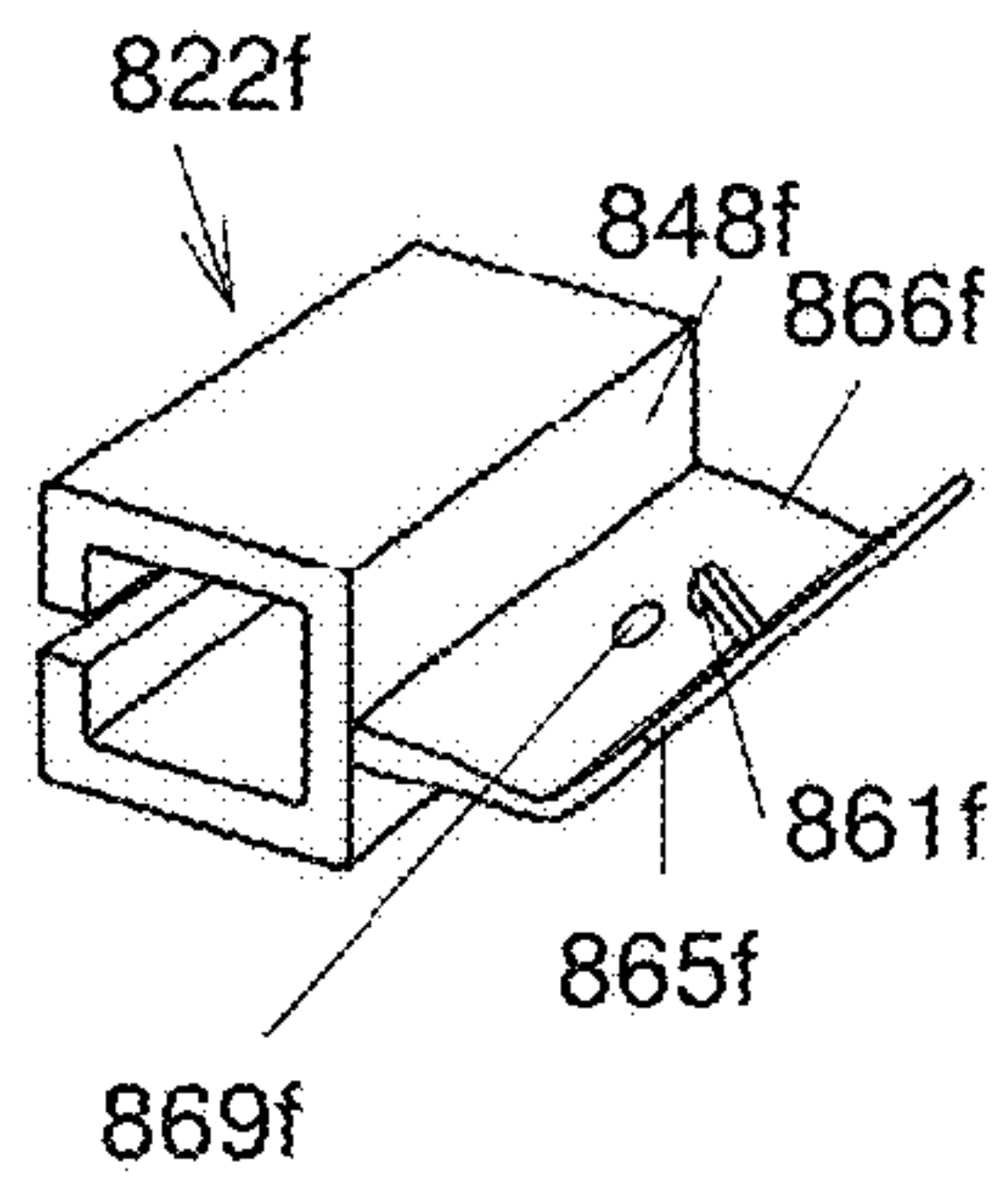


FIG. 65

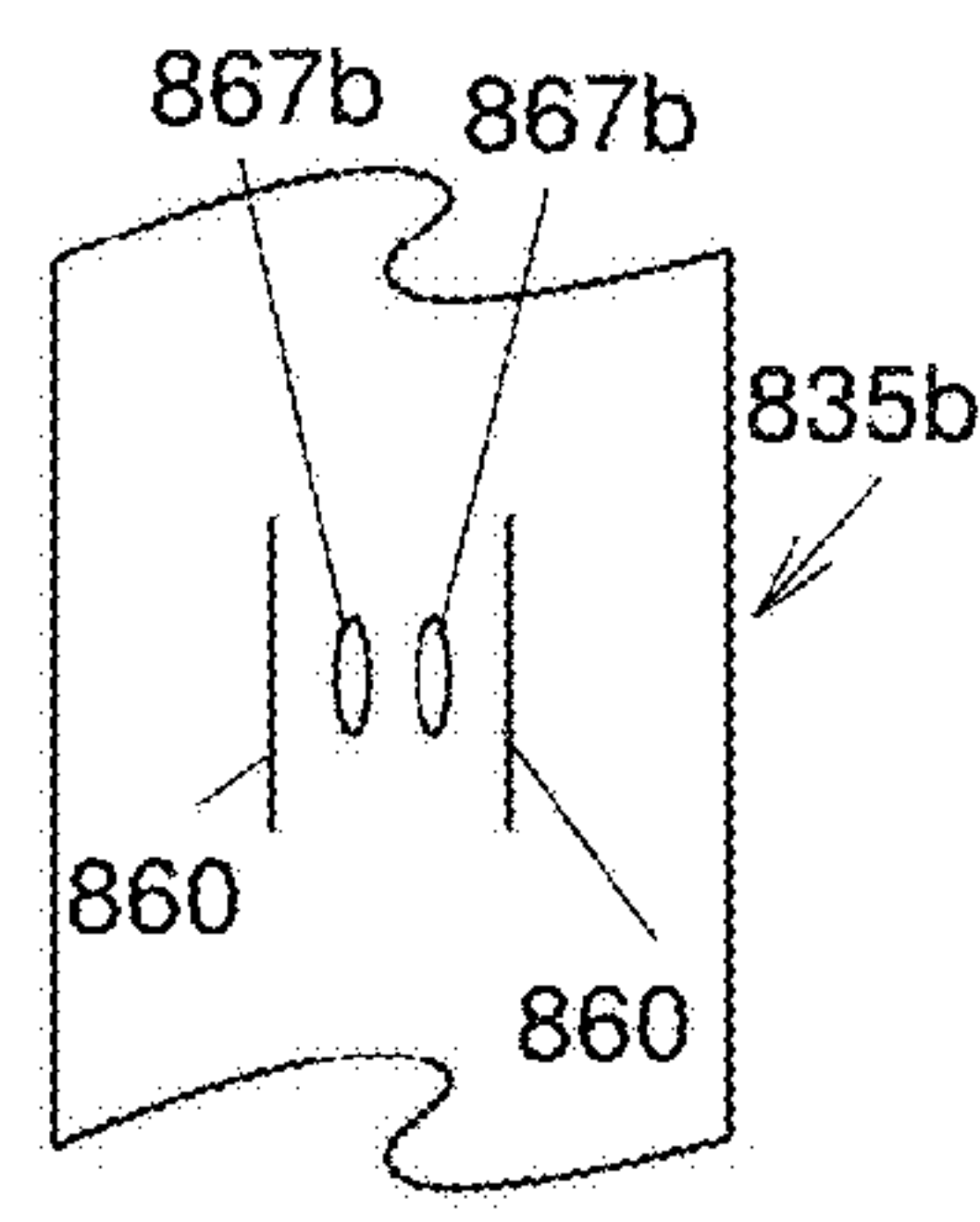


FIG. 67

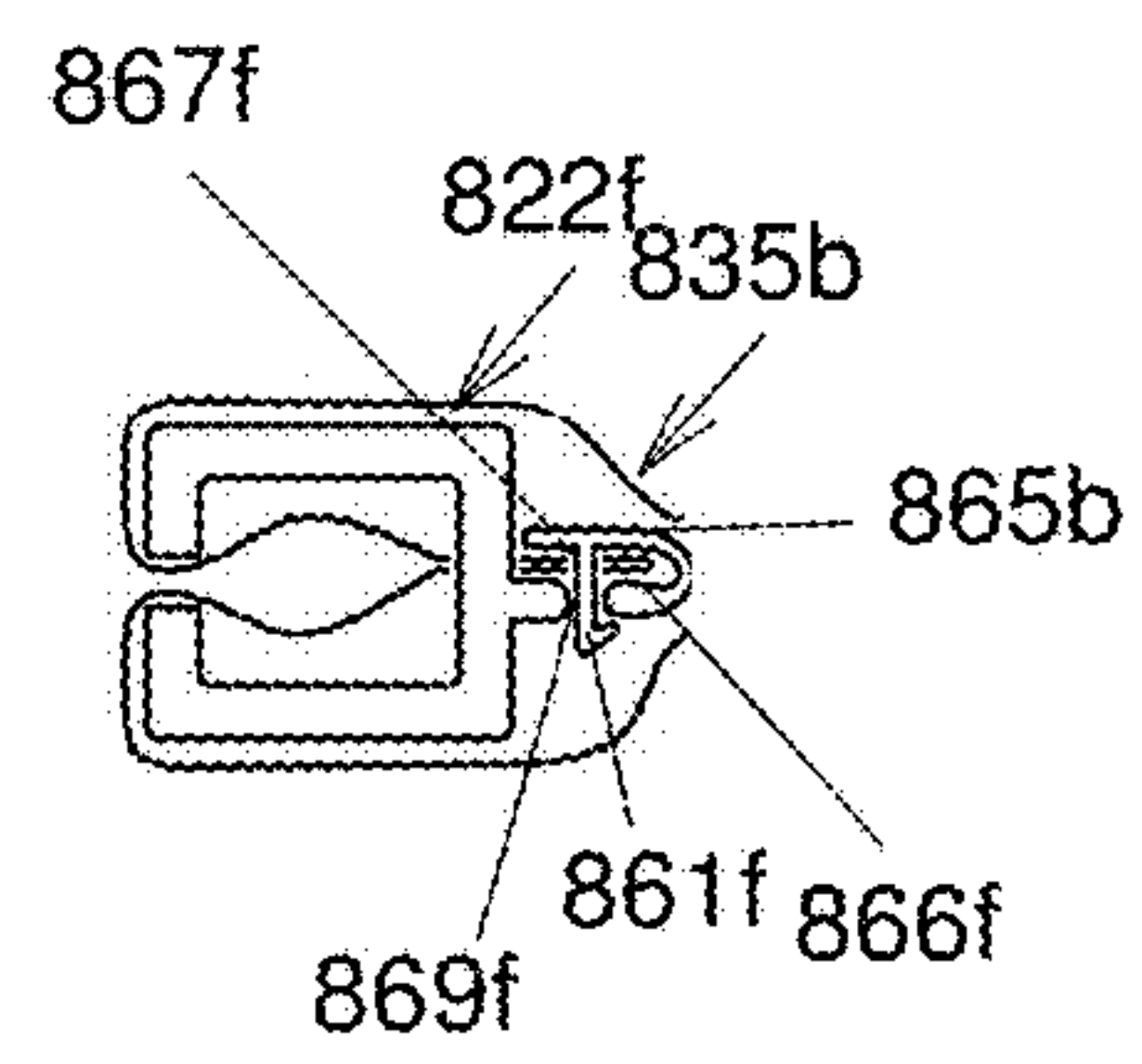


FIG. 68

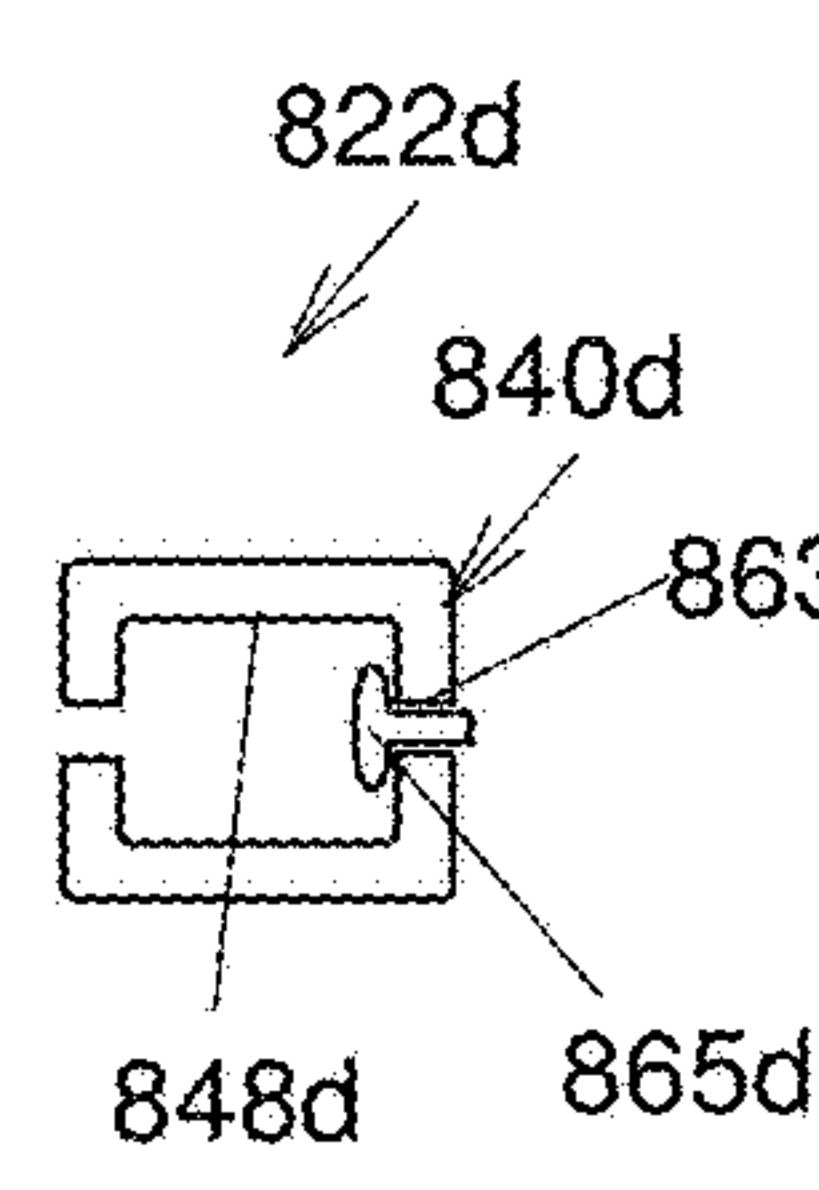


FIG. 58

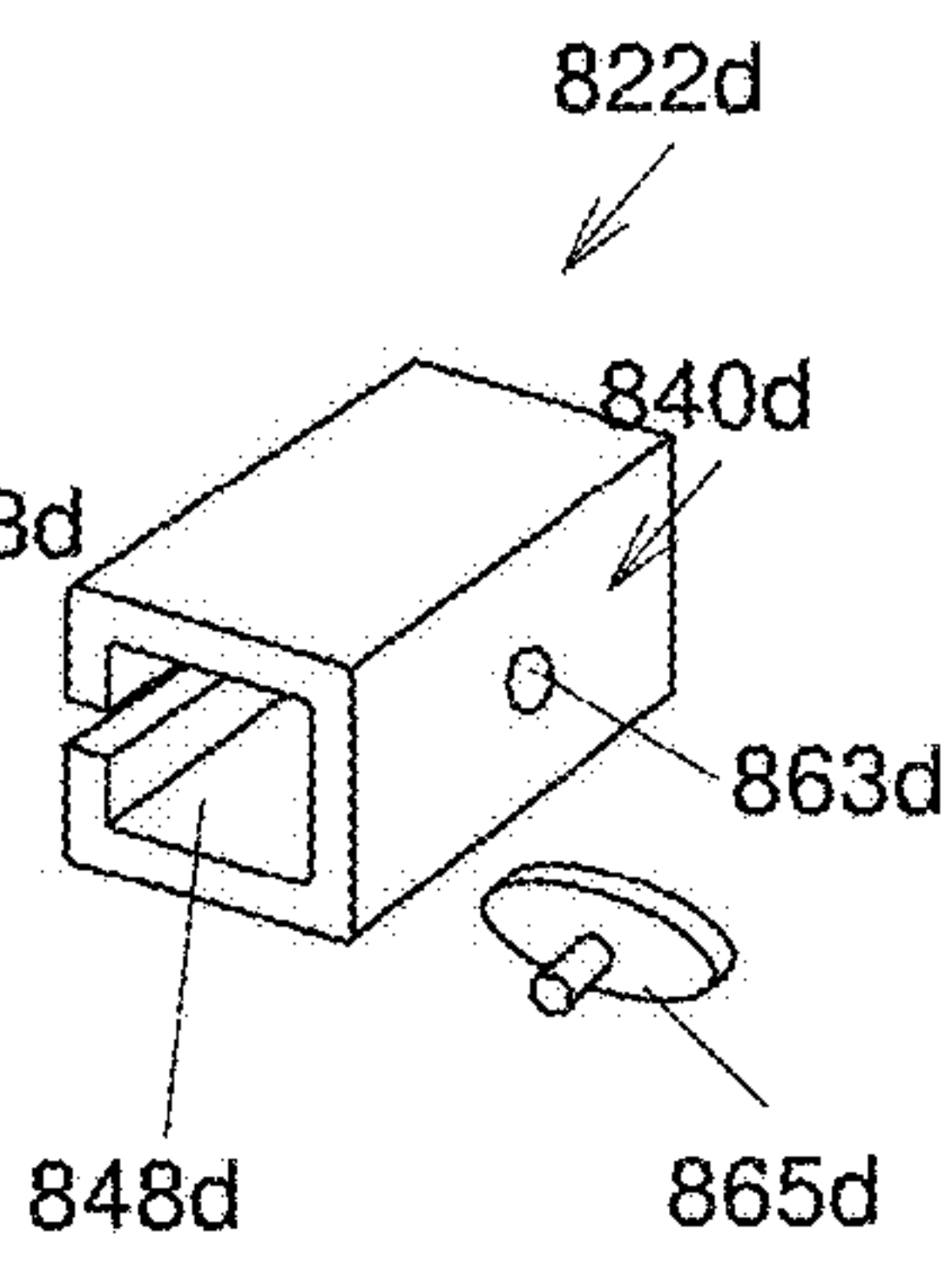


FIG. 57

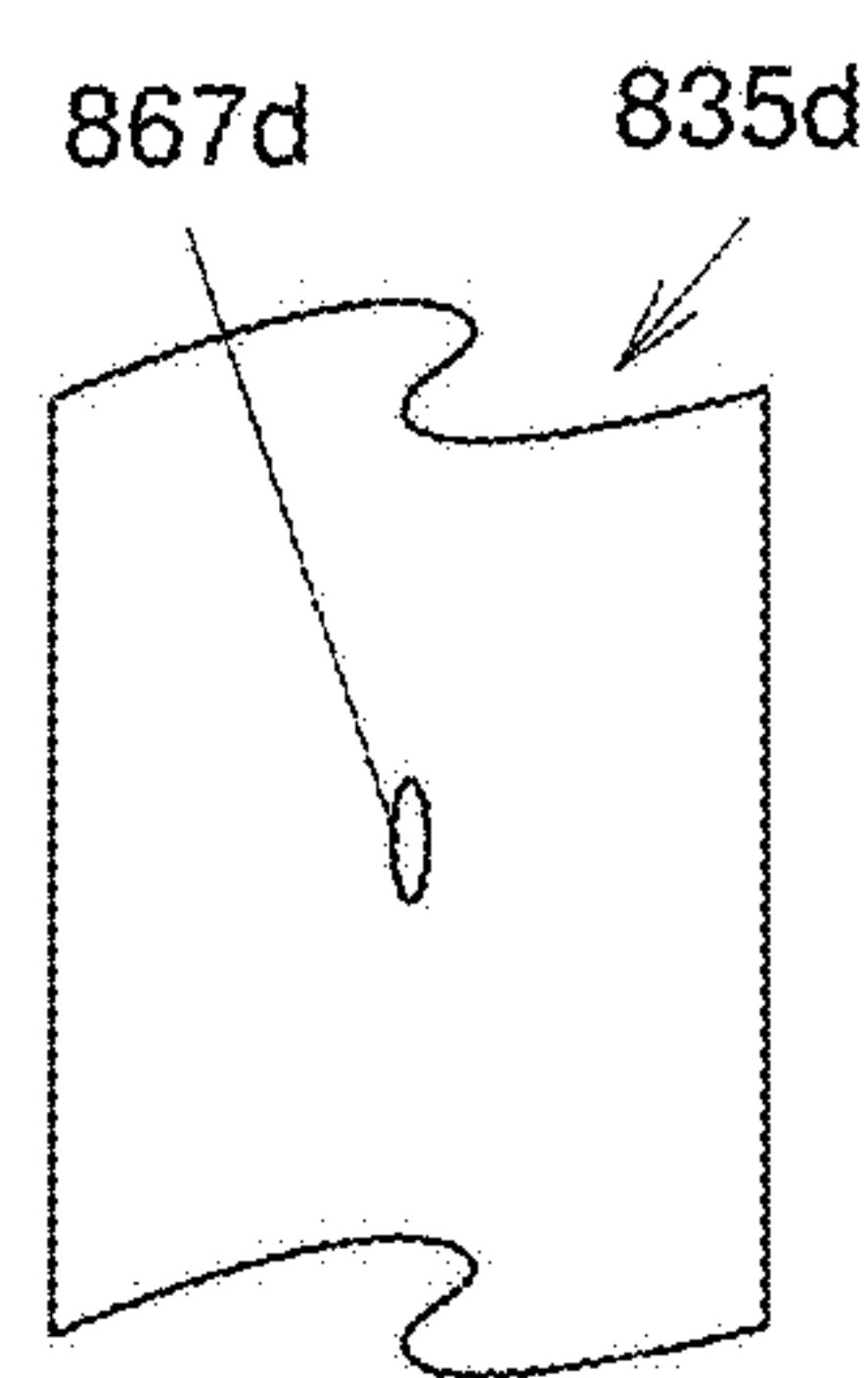


FIG. 59

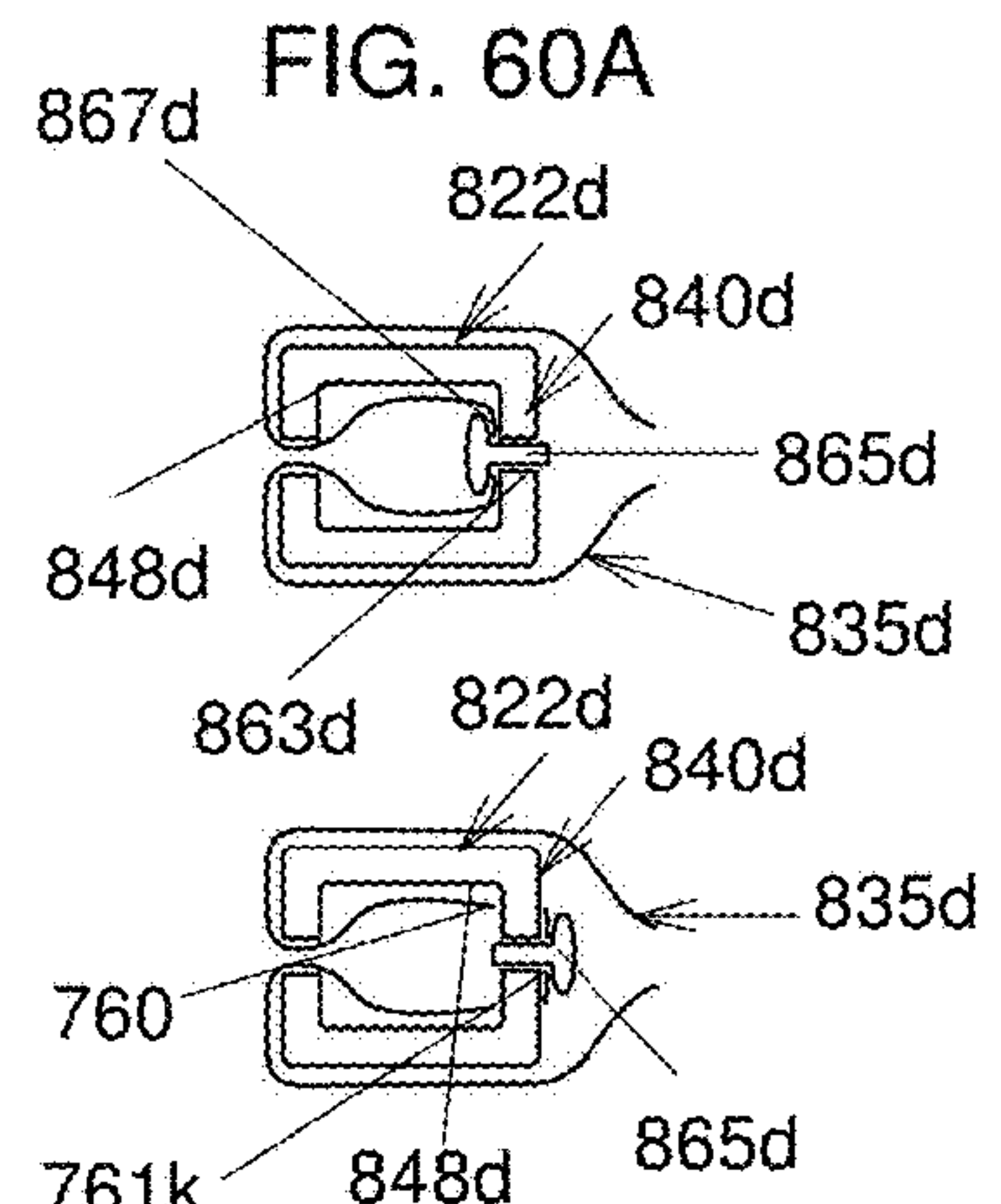


FIG. 60A

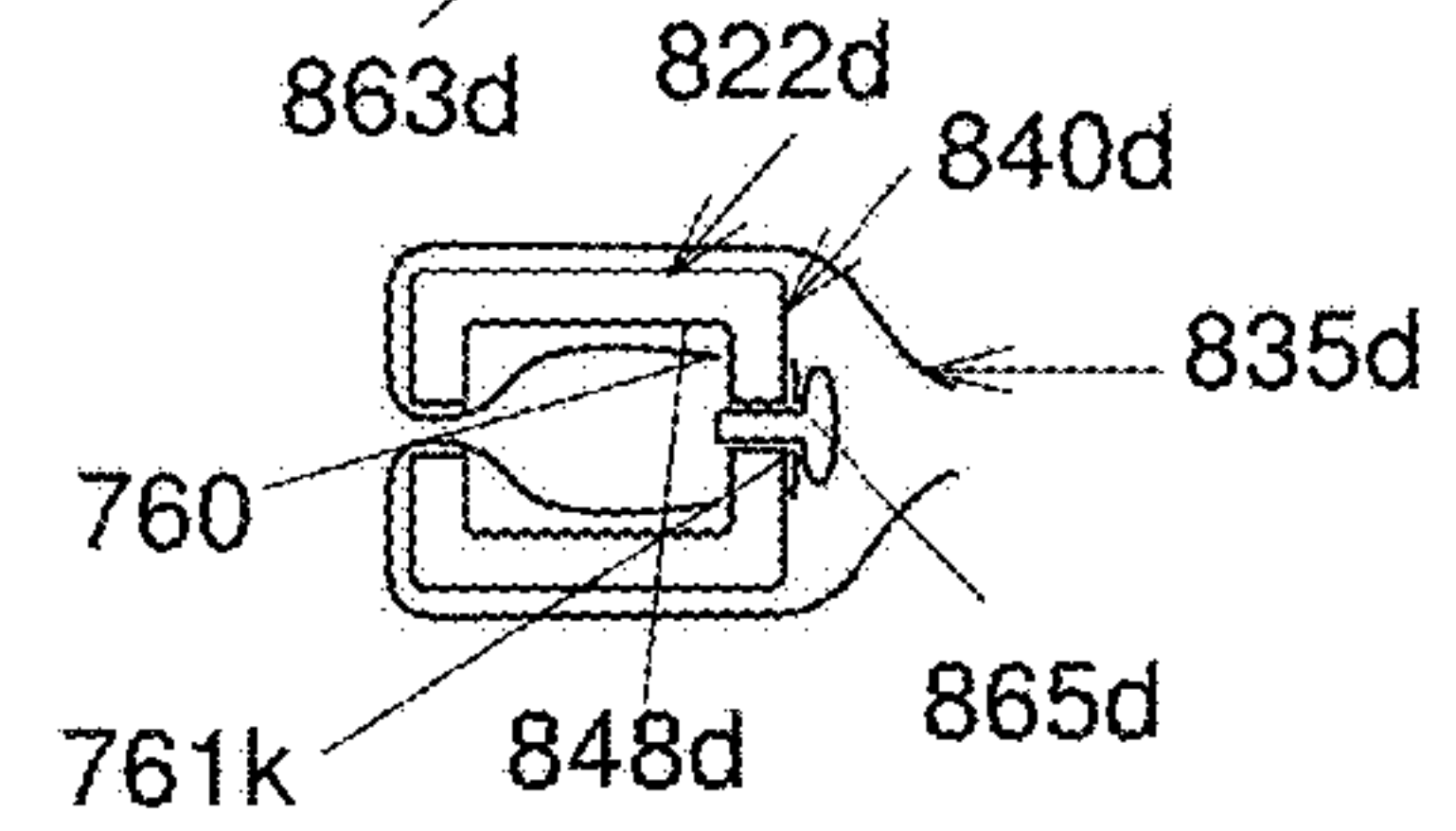


FIG. 60B

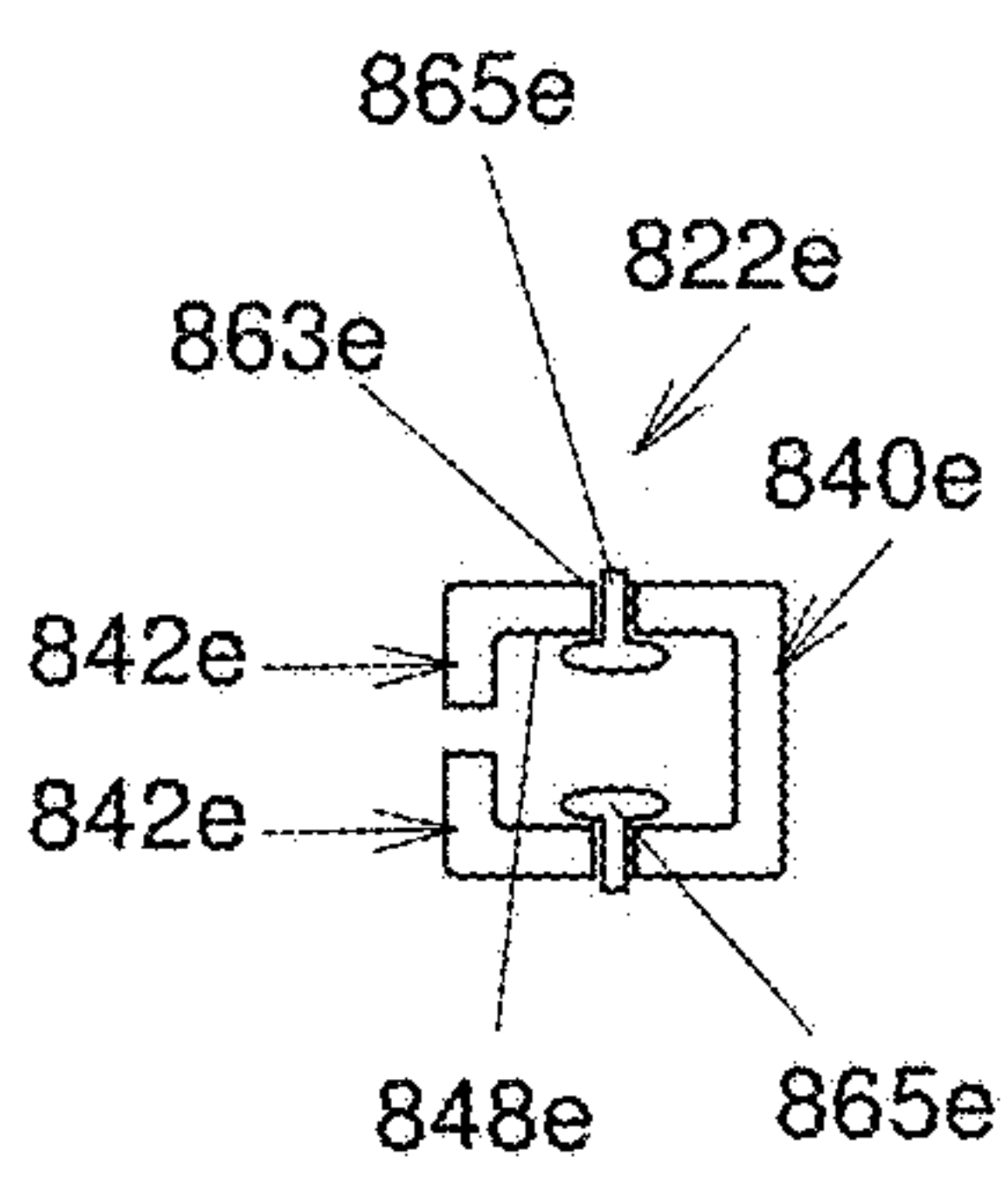


FIG. 62

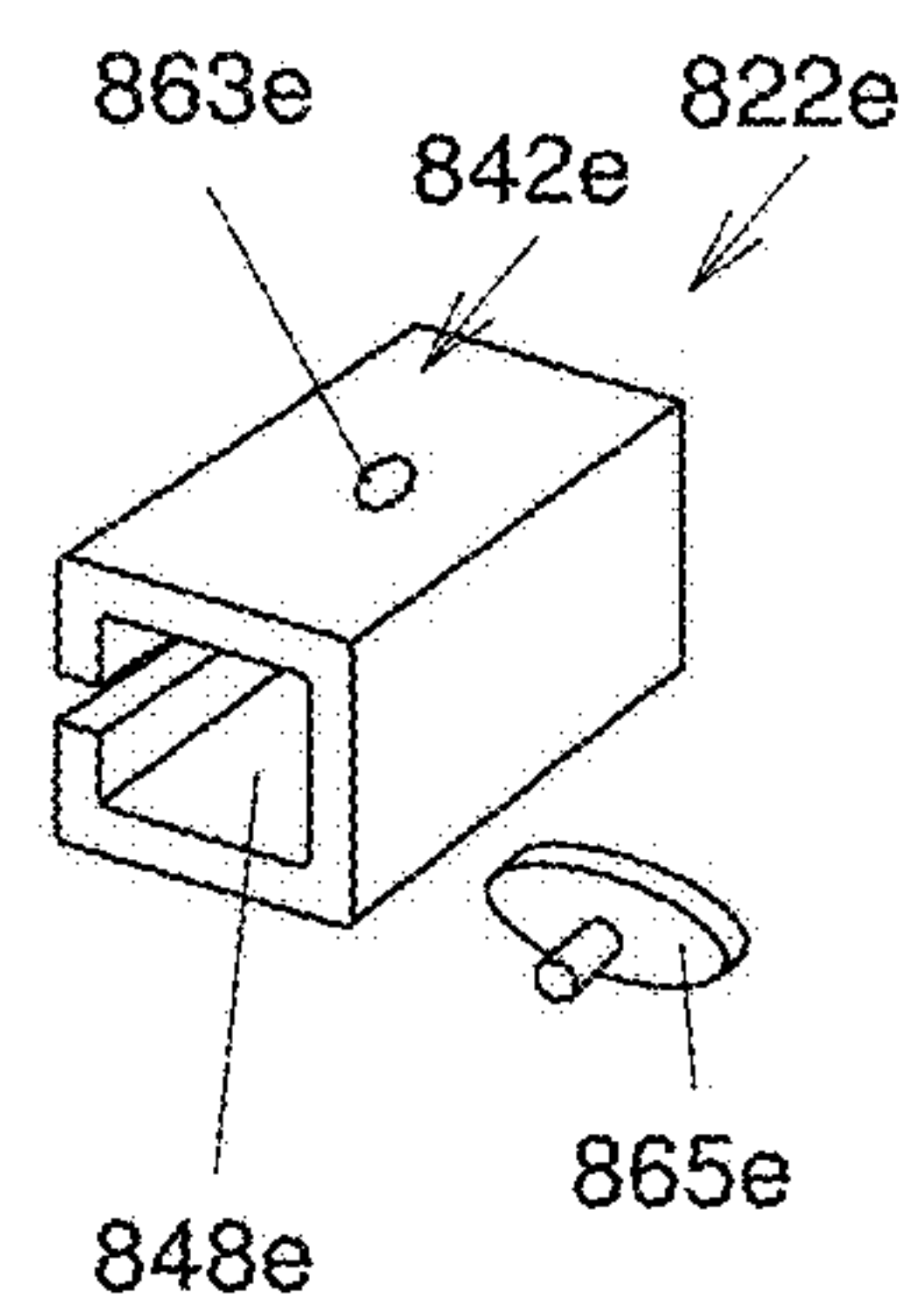


FIG. 61

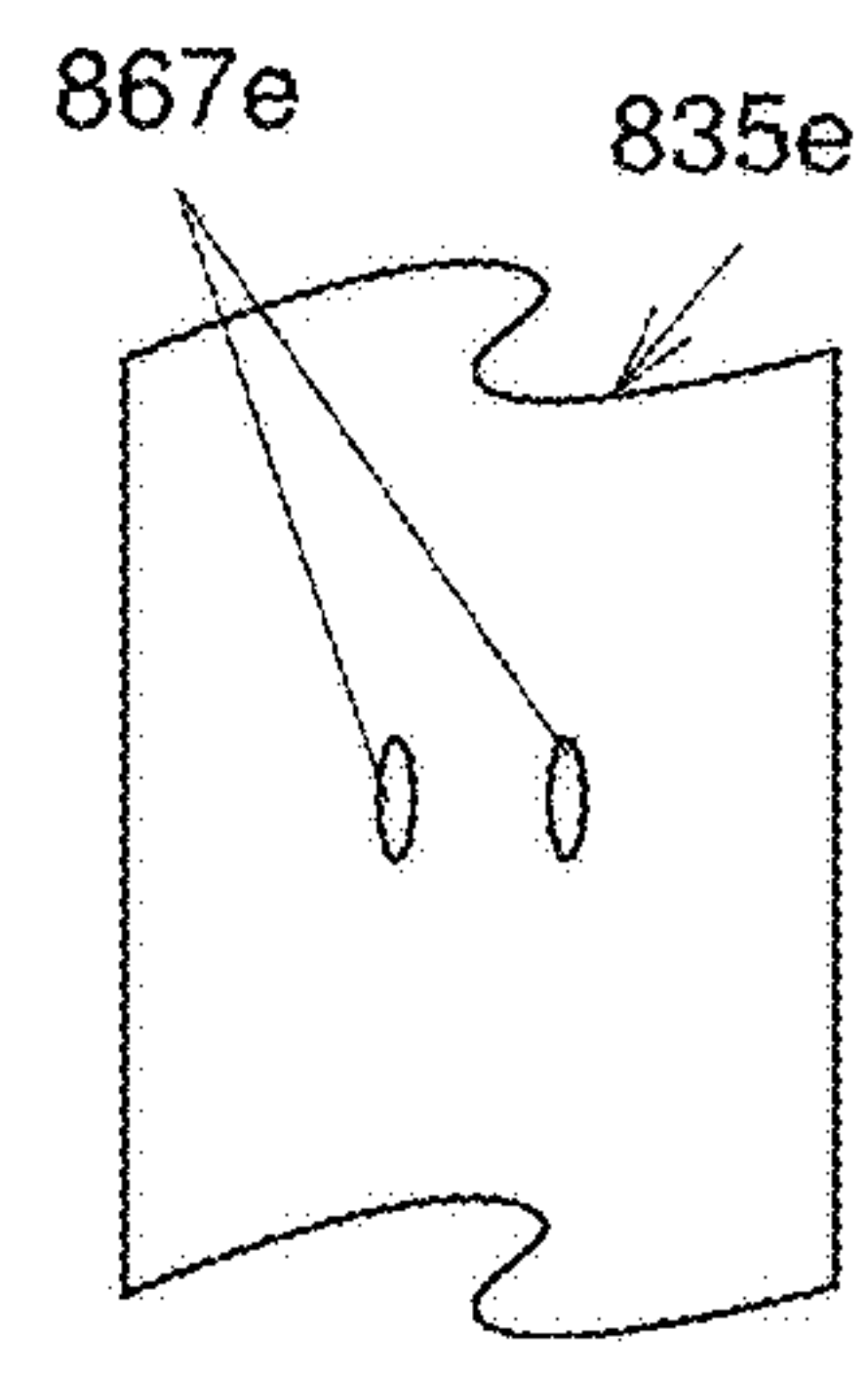


FIG. 63

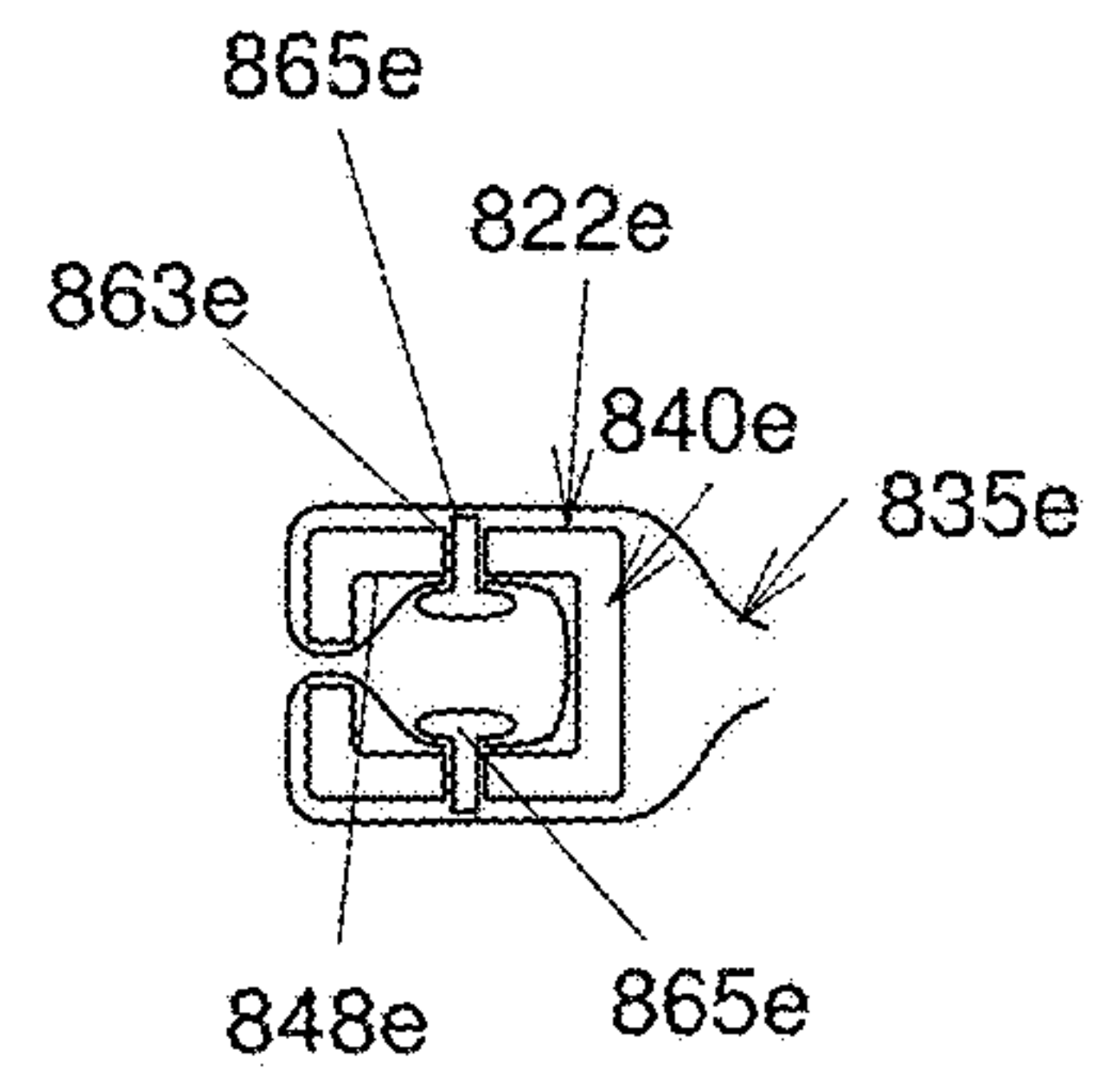


FIG. 64

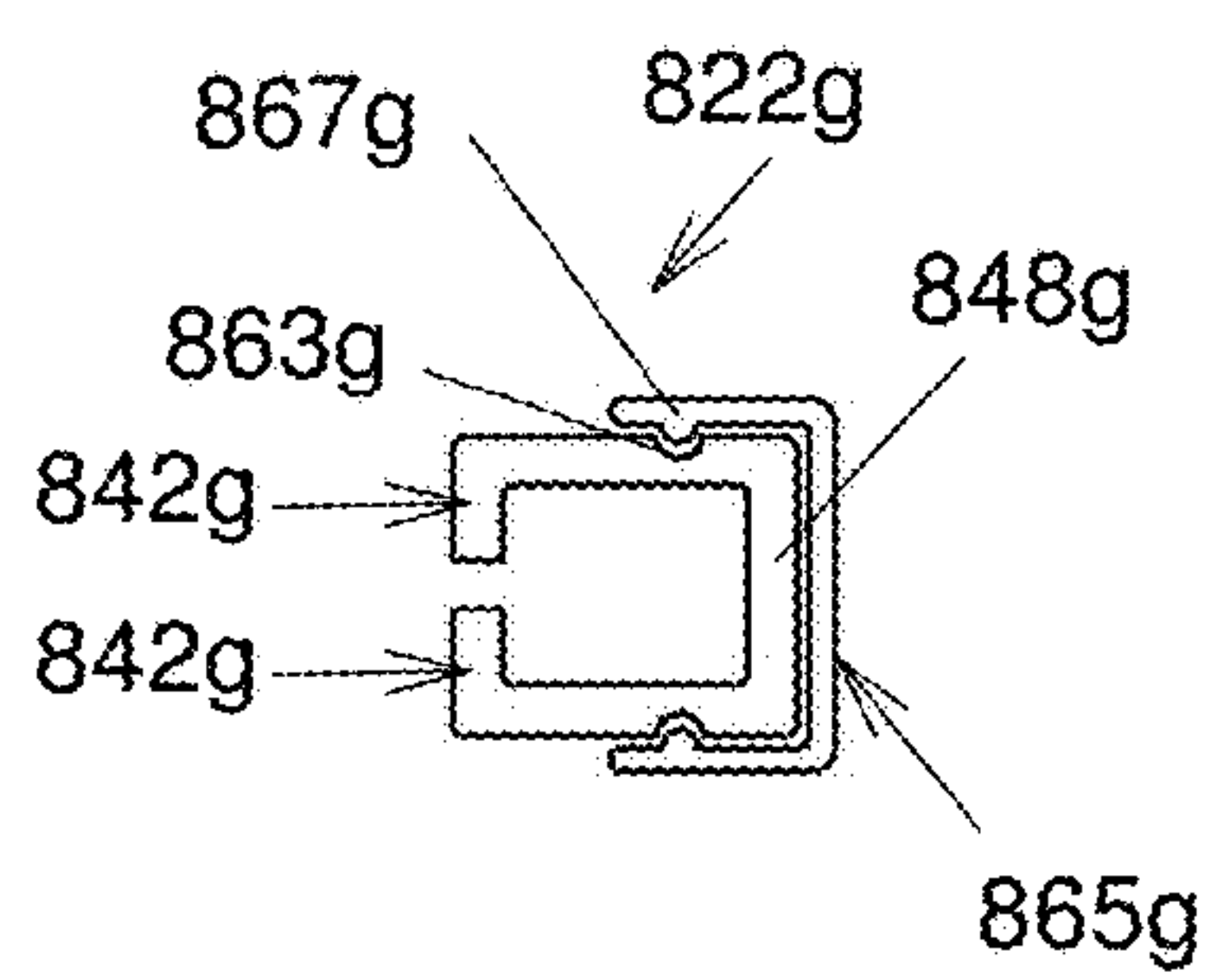


FIG. 70

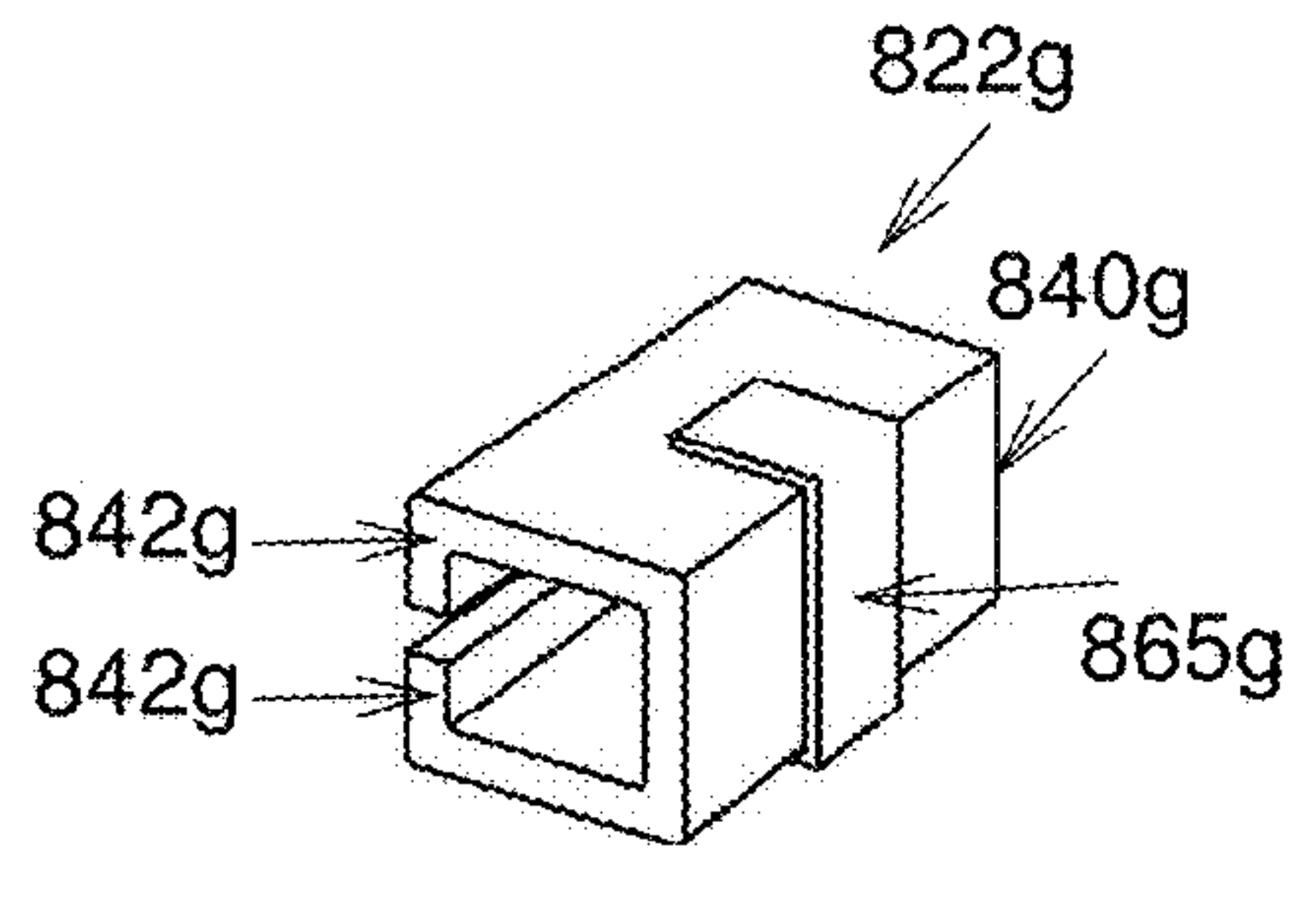


FIG. 69

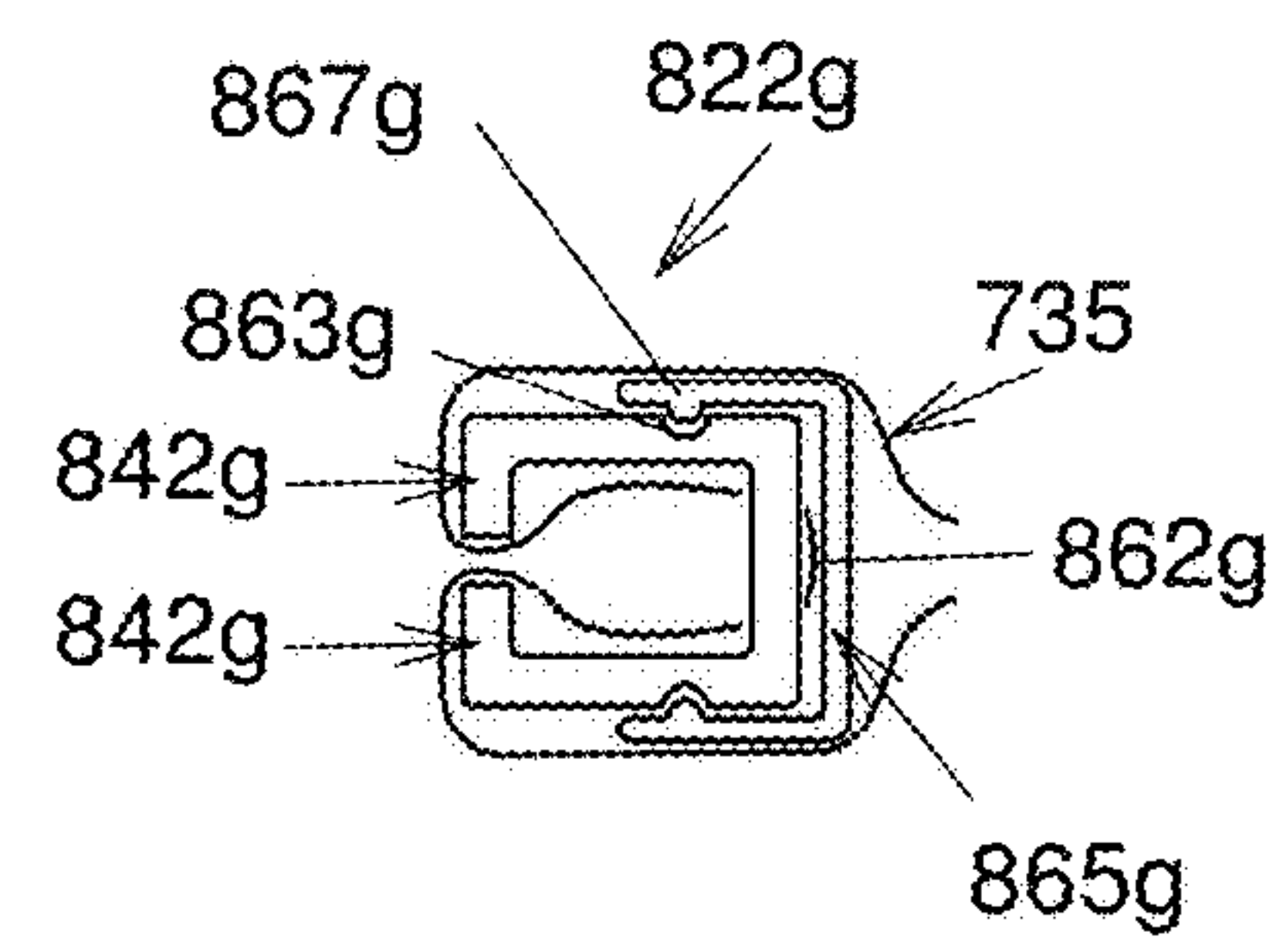


FIG. 71

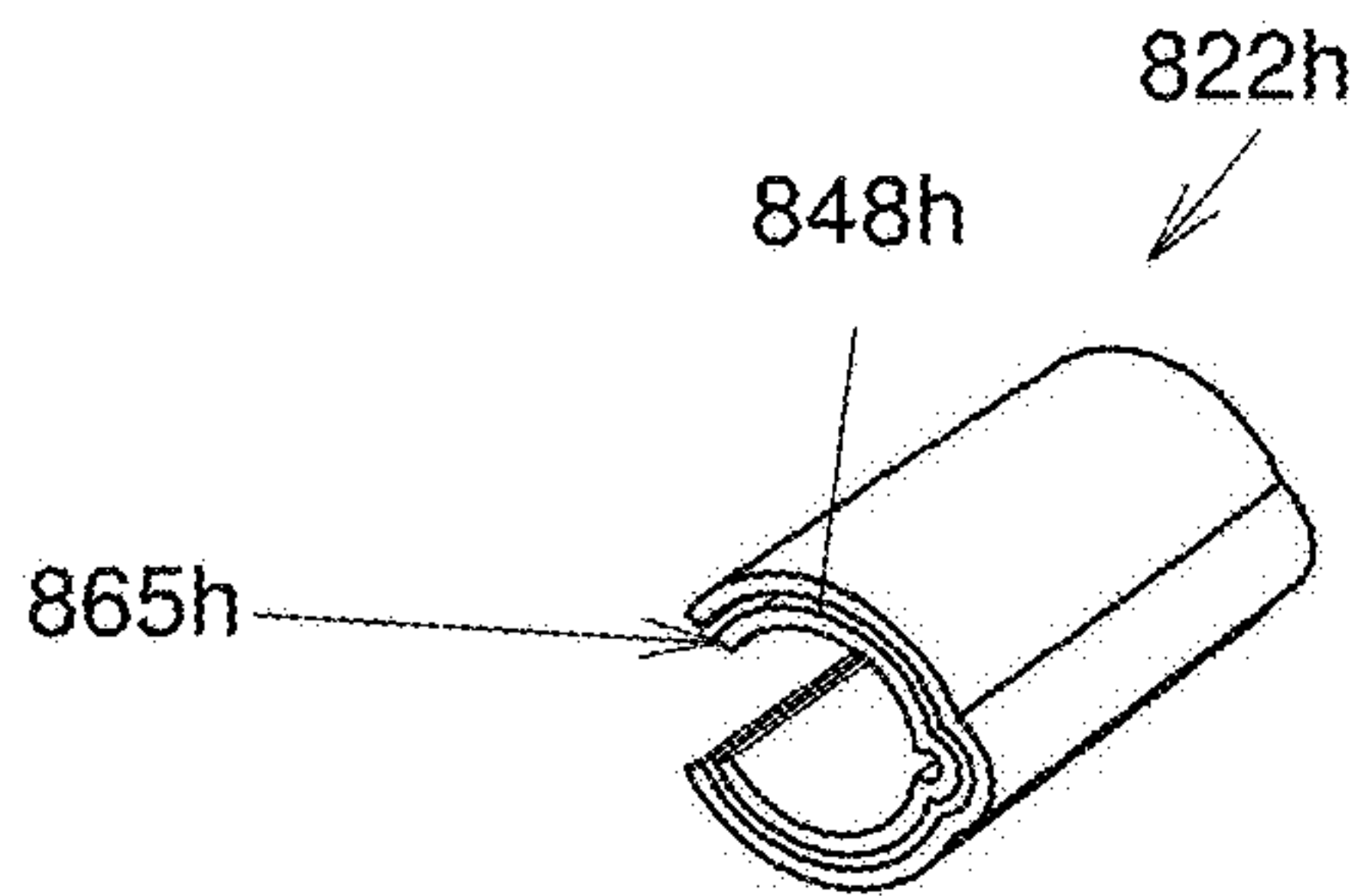


FIG. 72

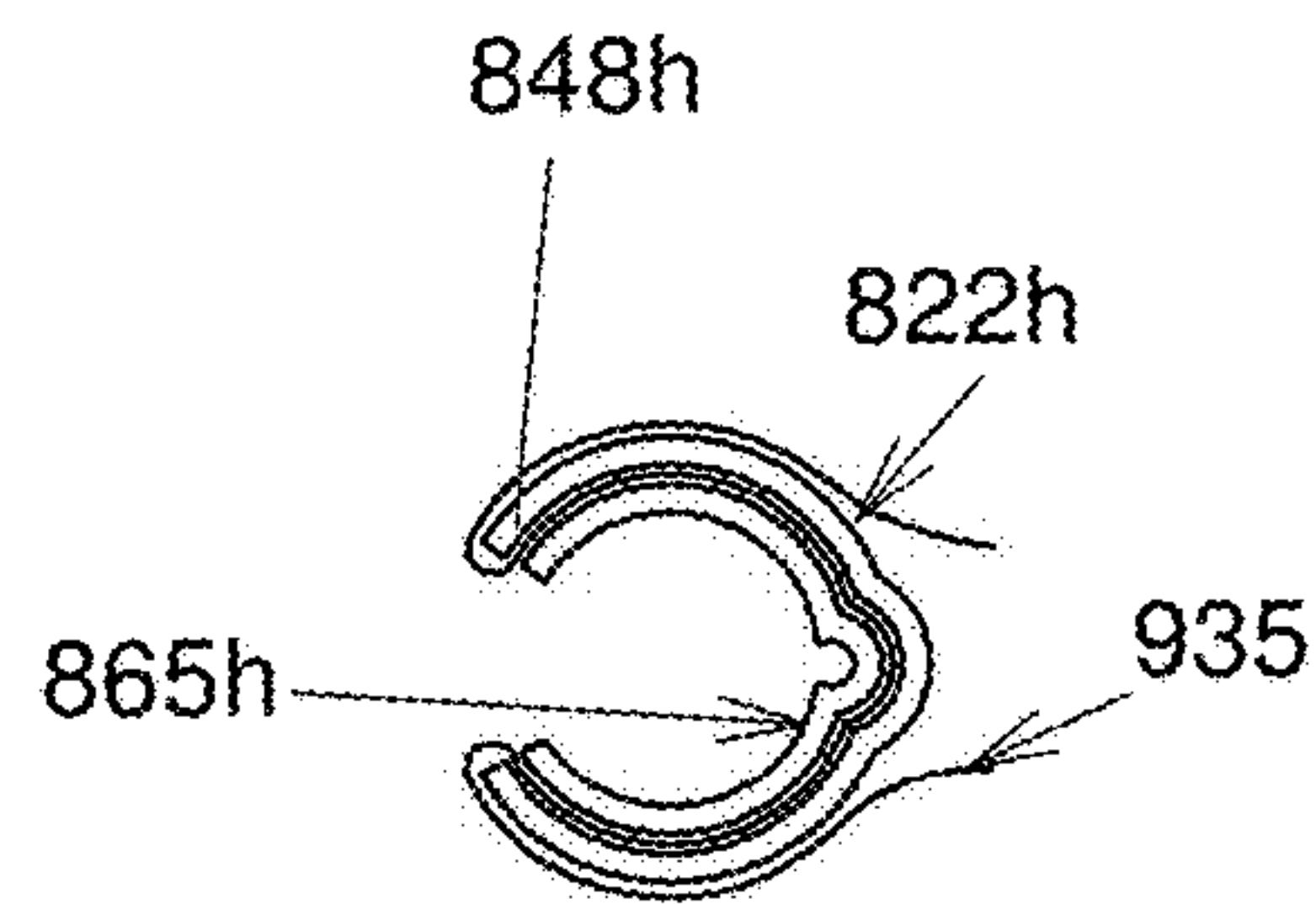


FIG. 73

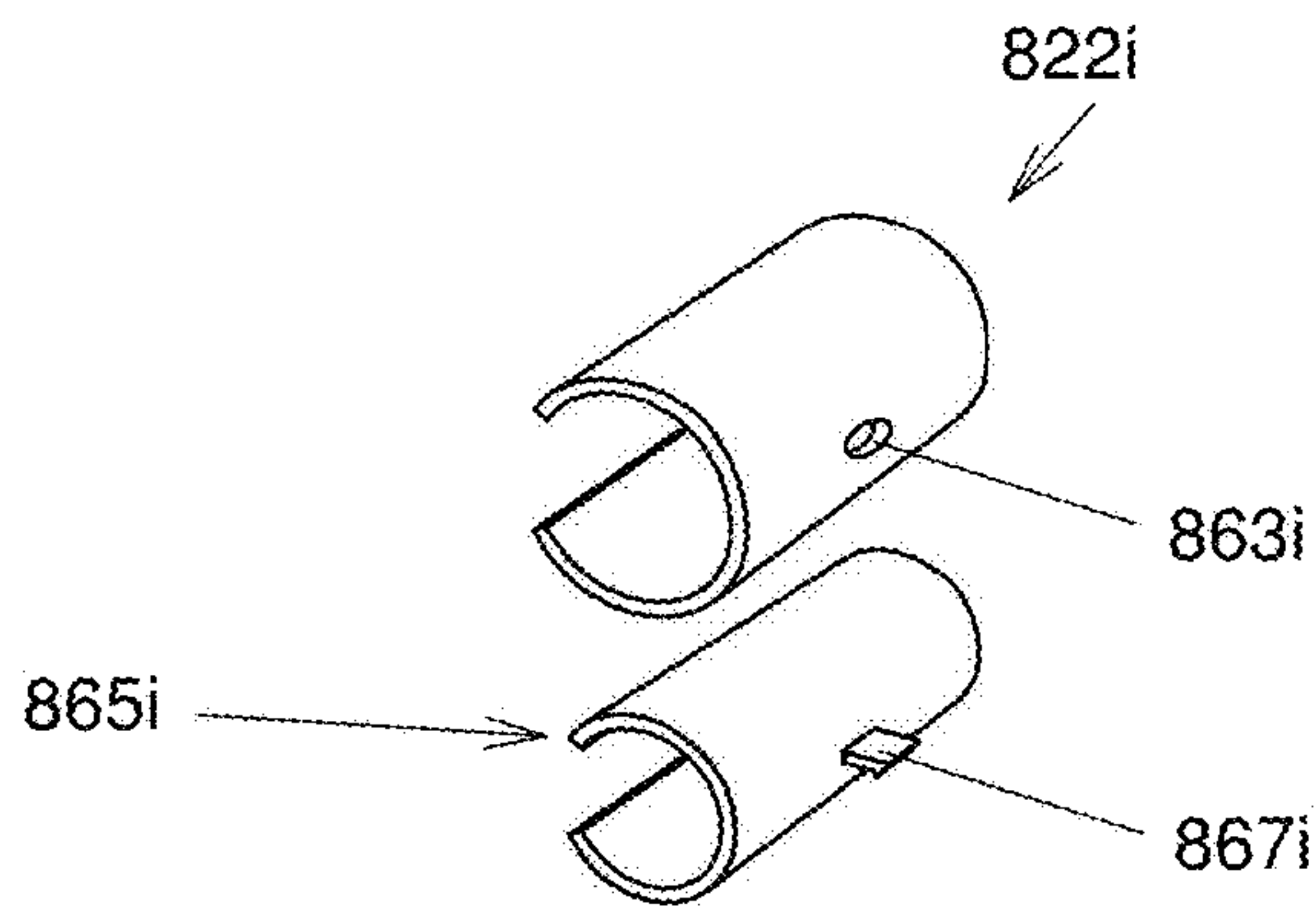


FIG. 74

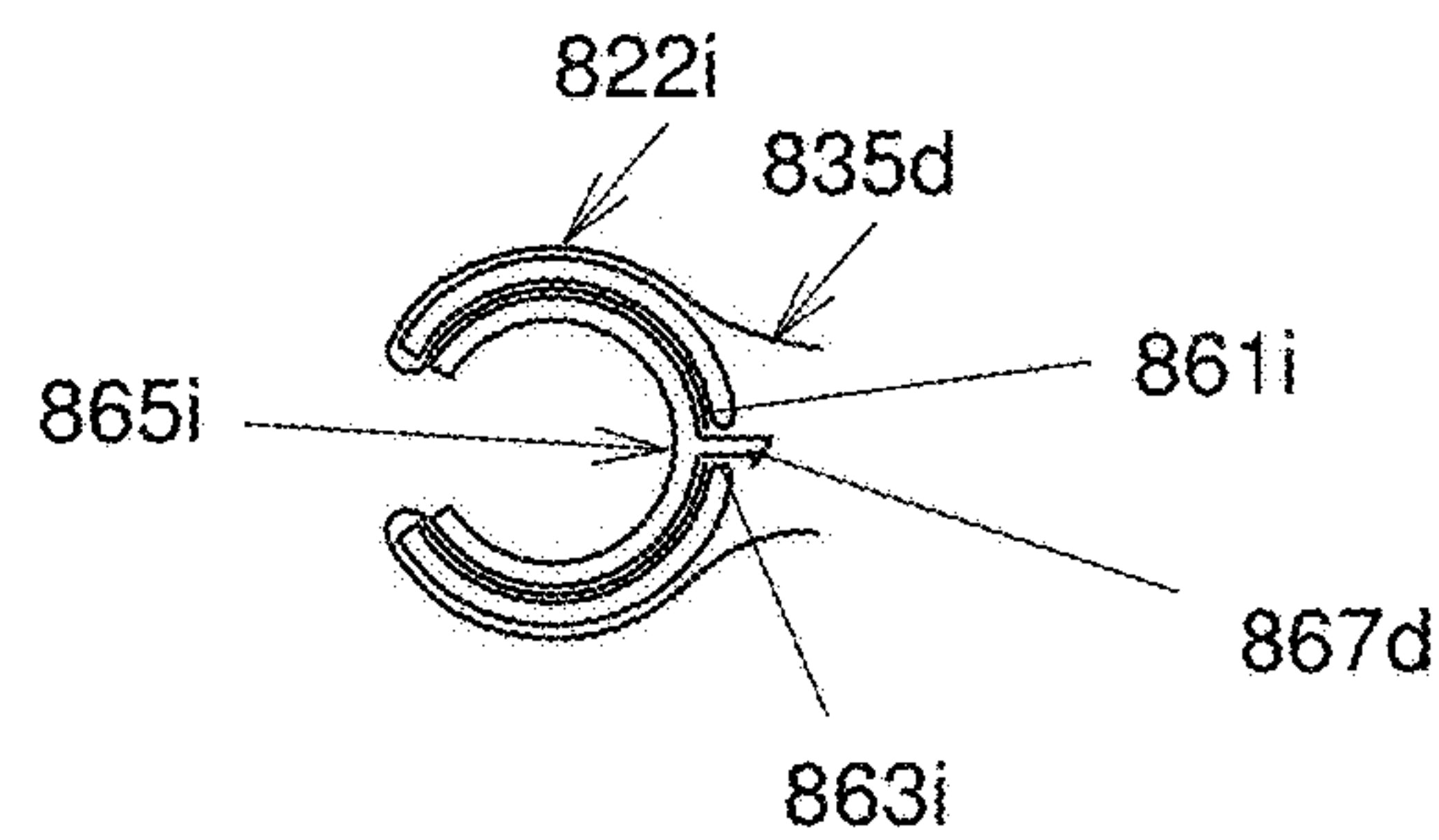


FIG. 75

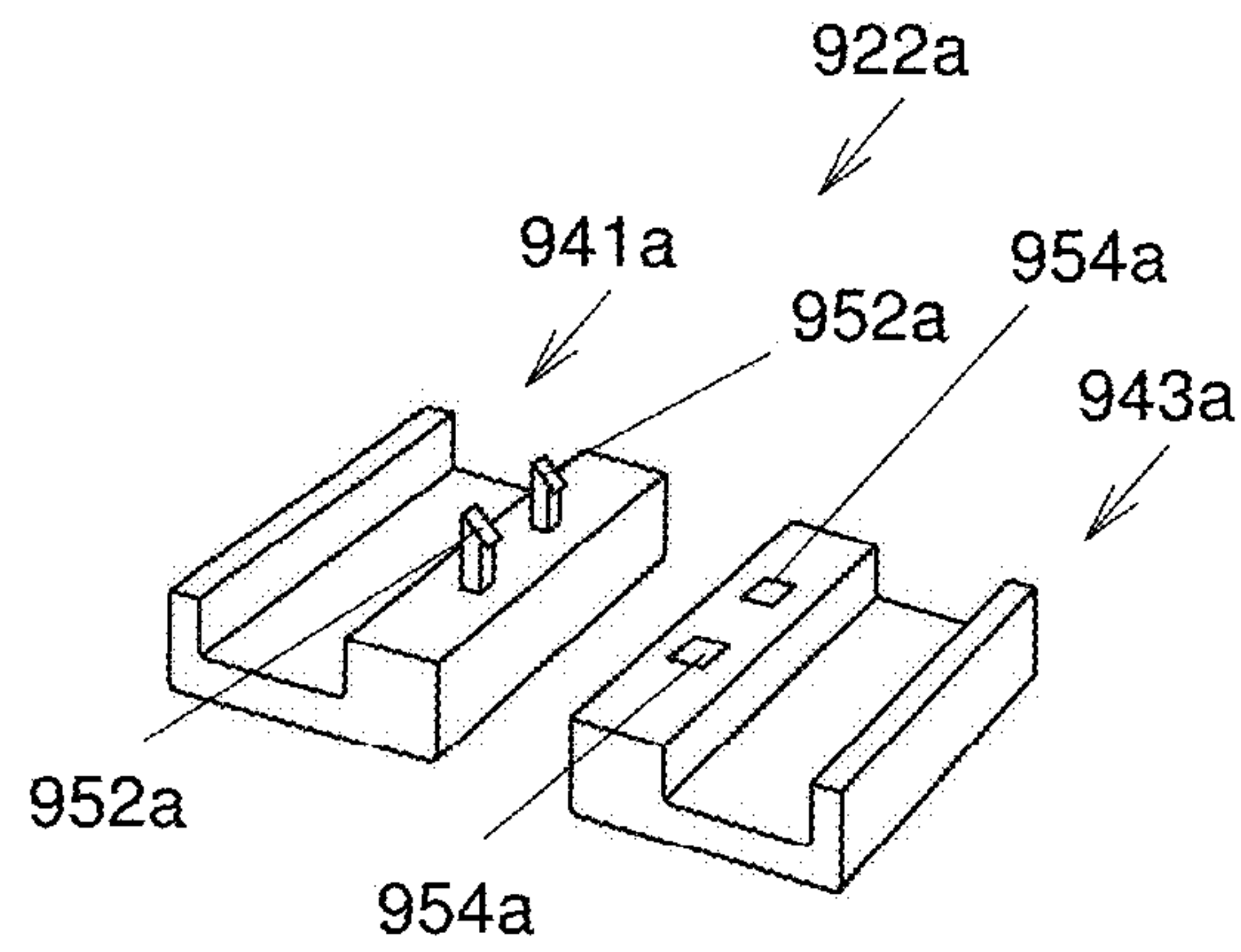


FIG. 79

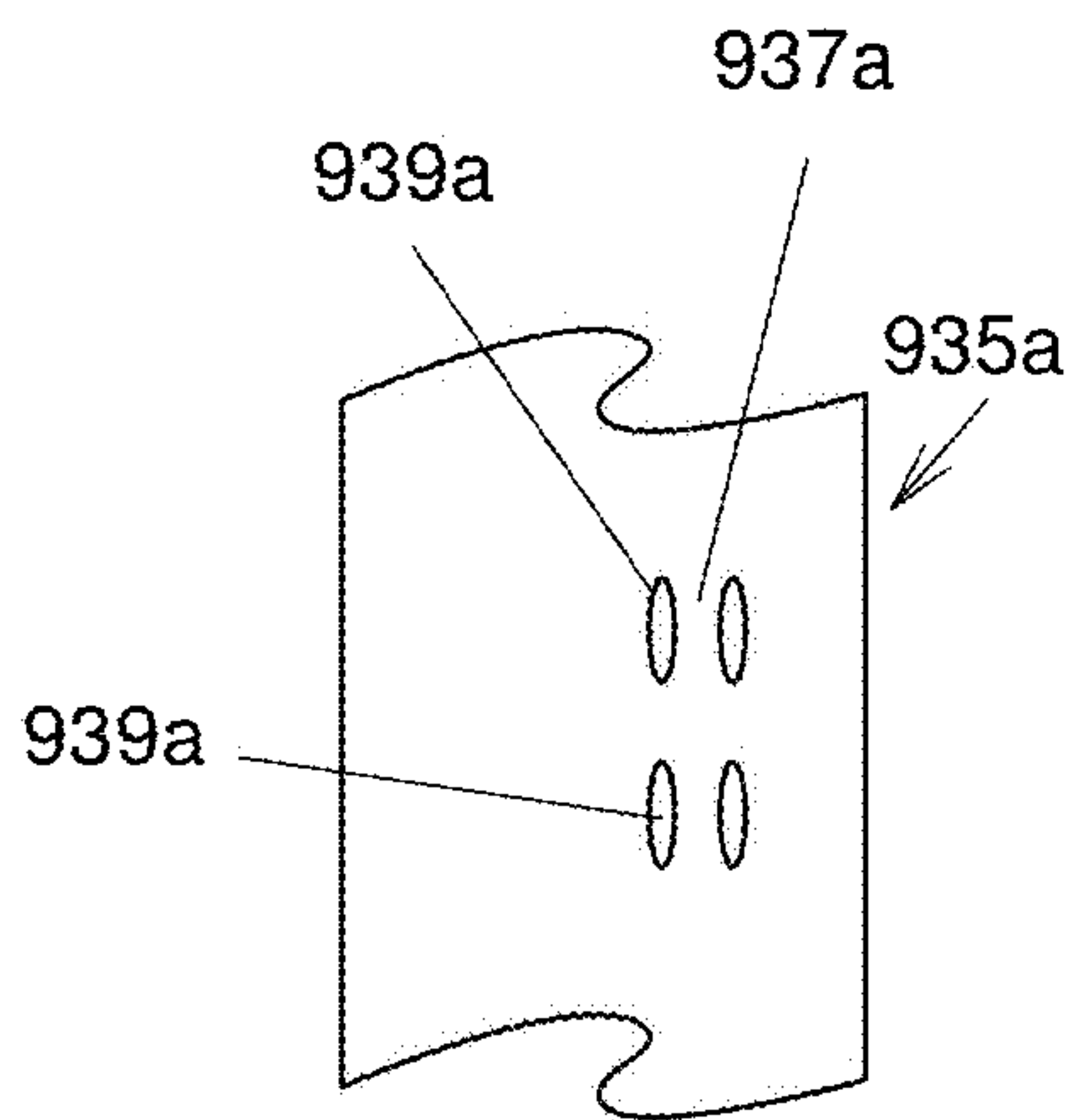


FIG. 80

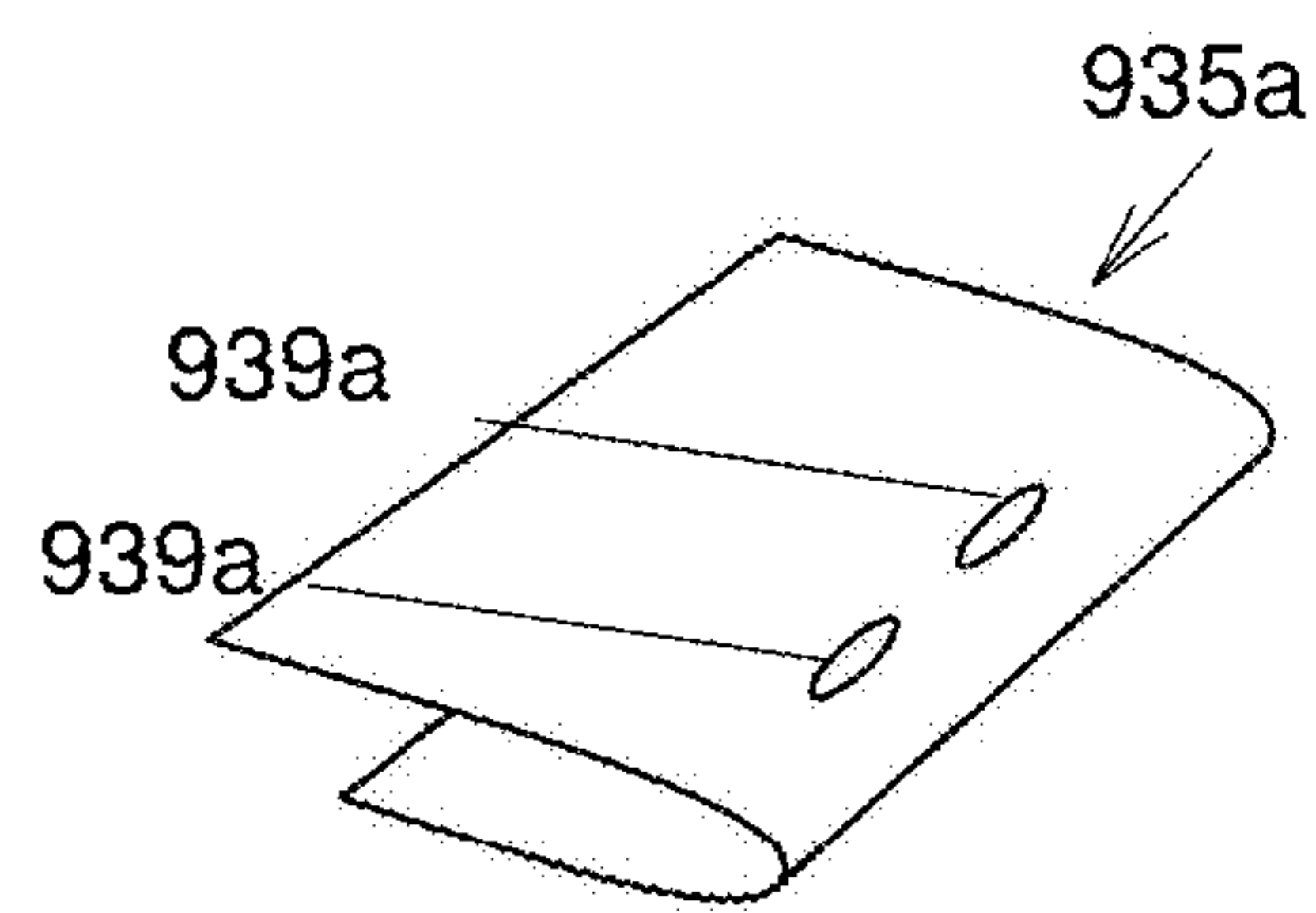


FIG. 81

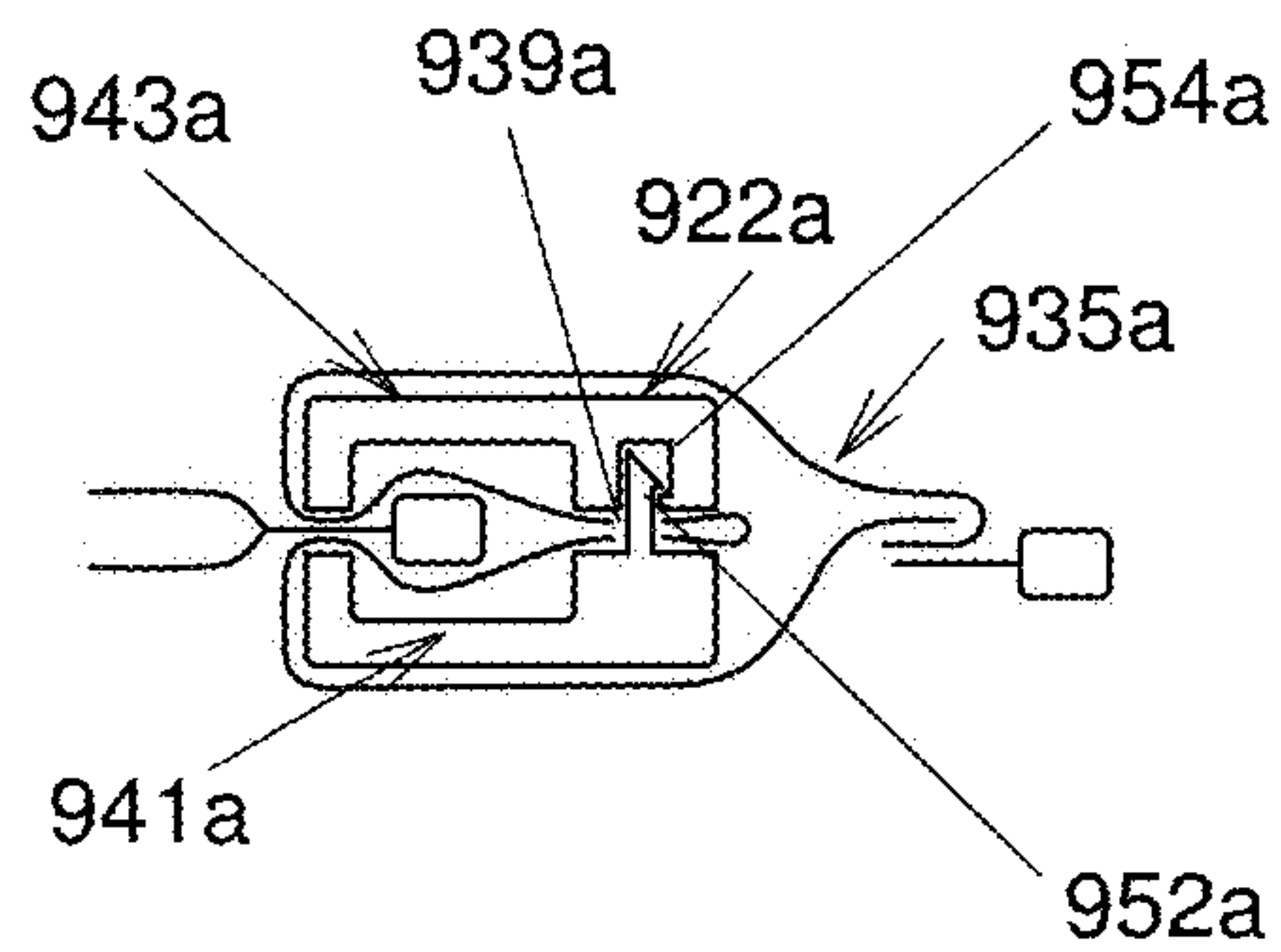


FIG. 82

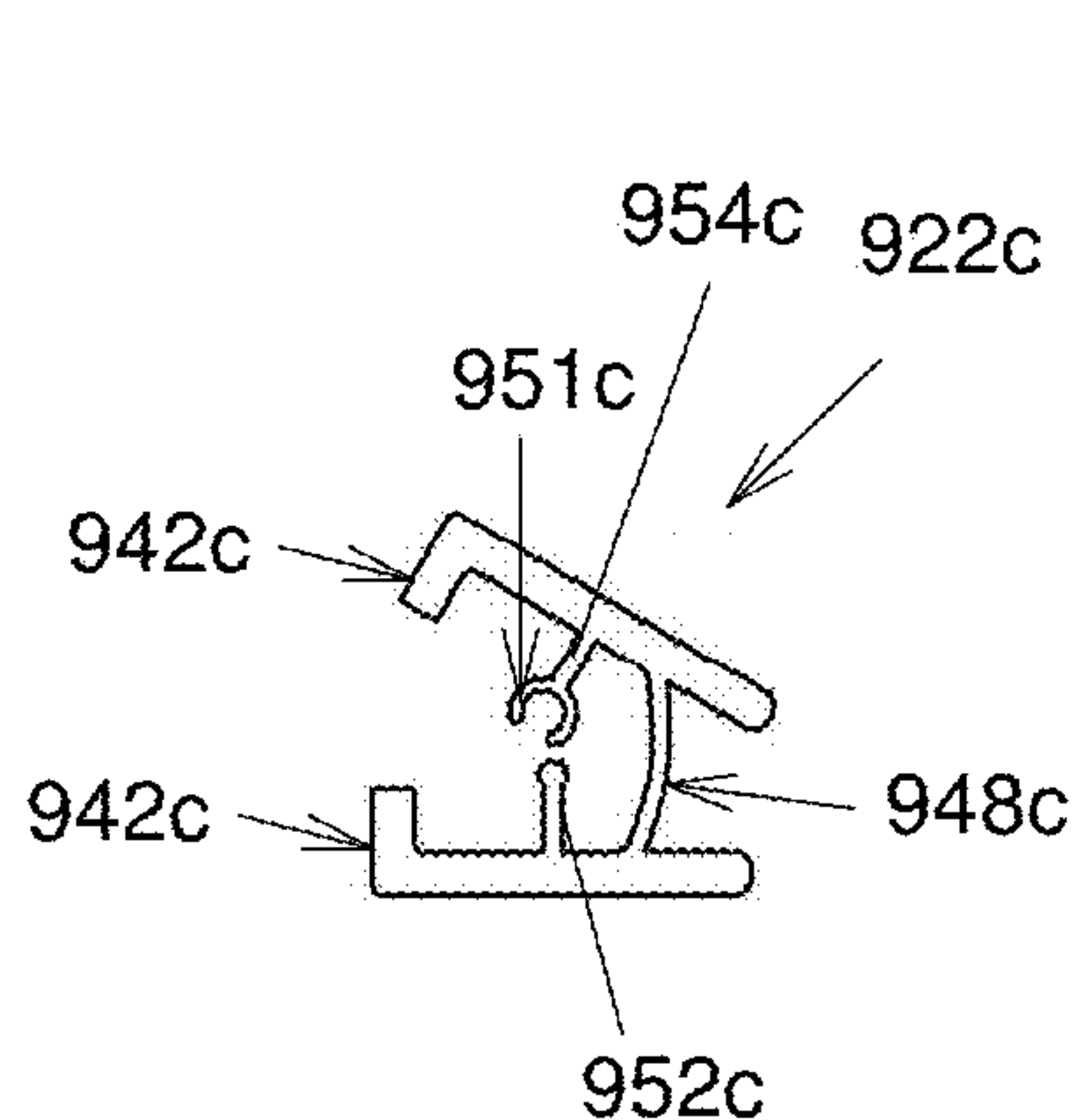


FIG. 84

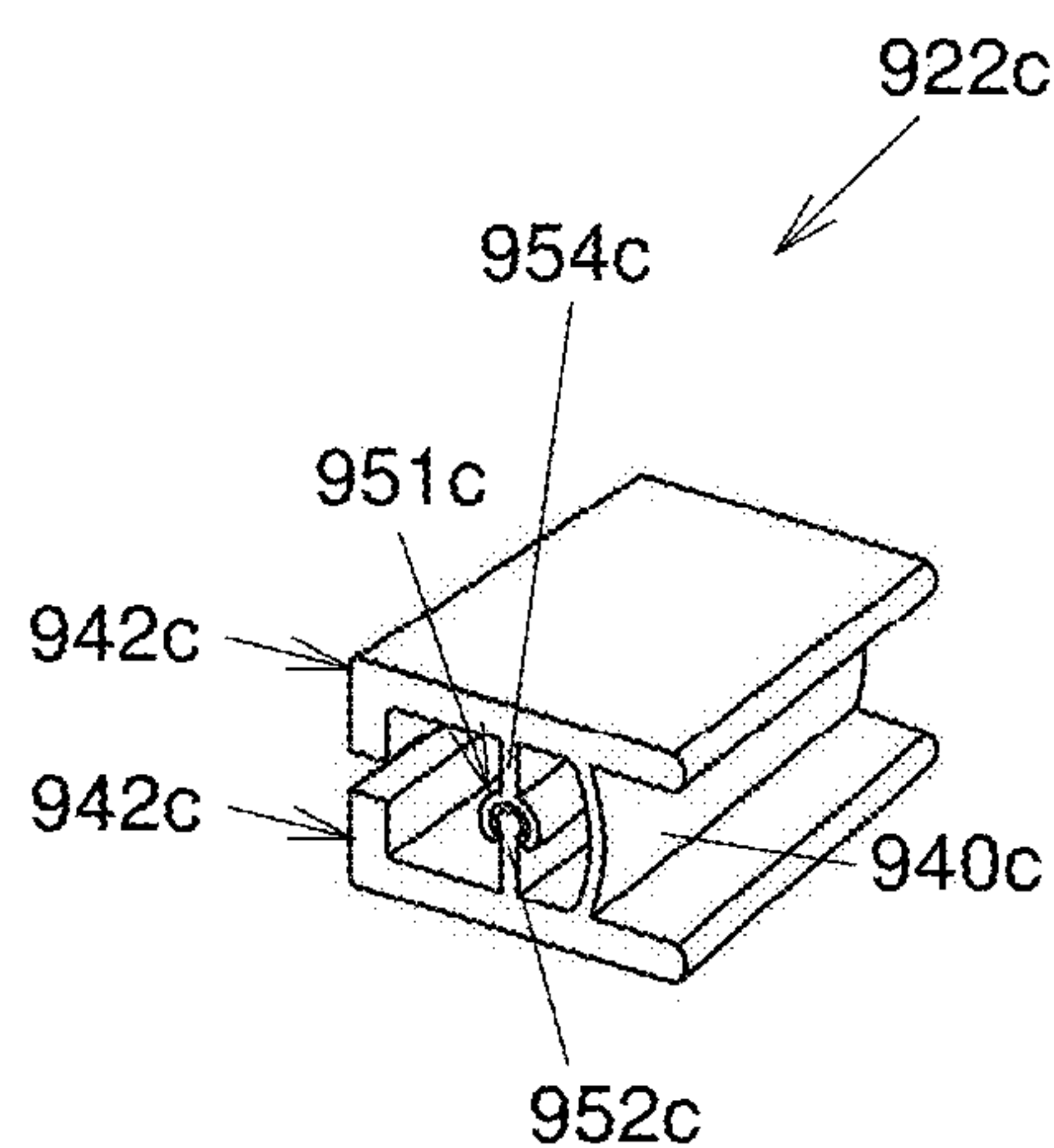


FIG. 83

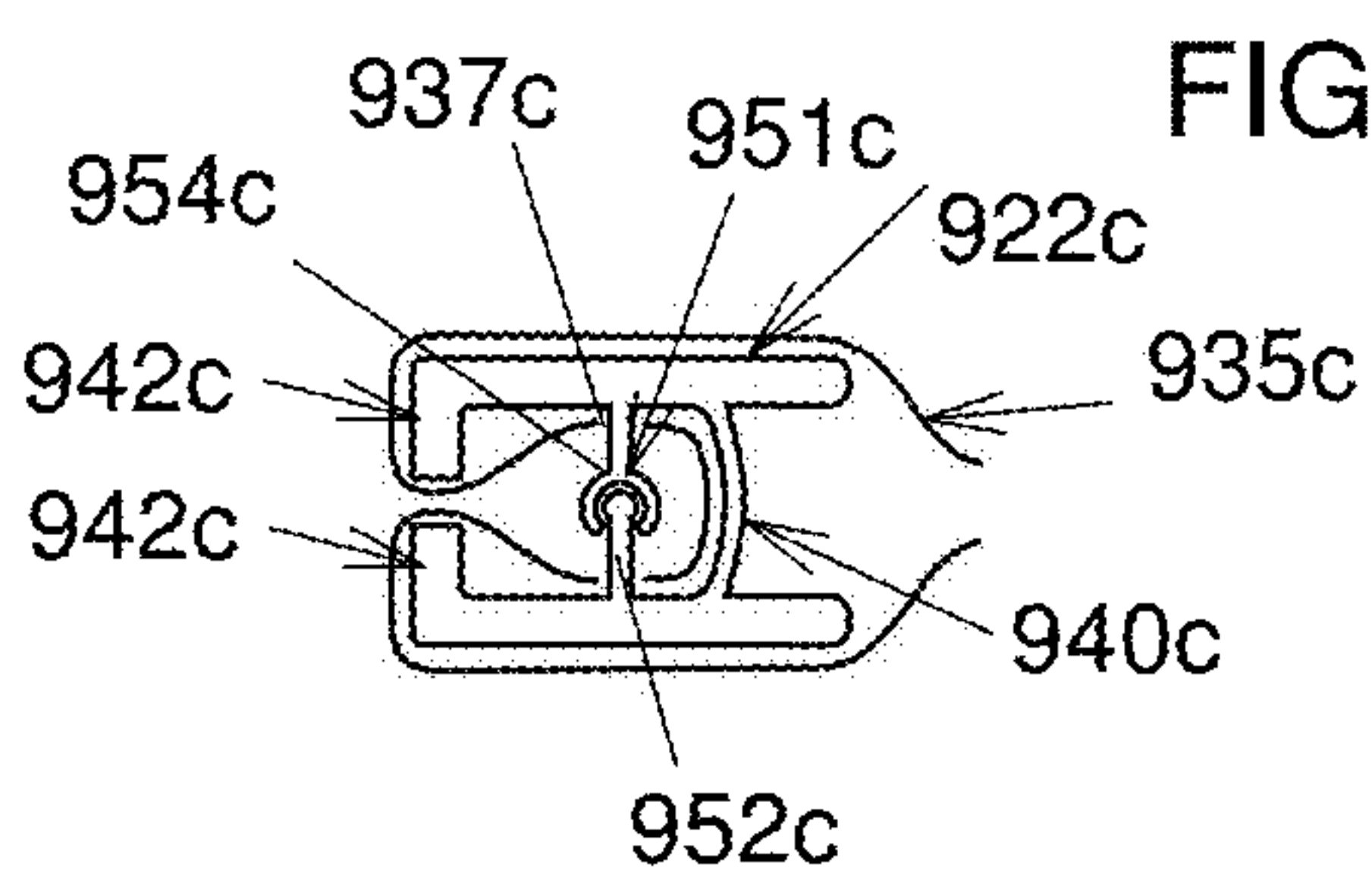


FIG. 85

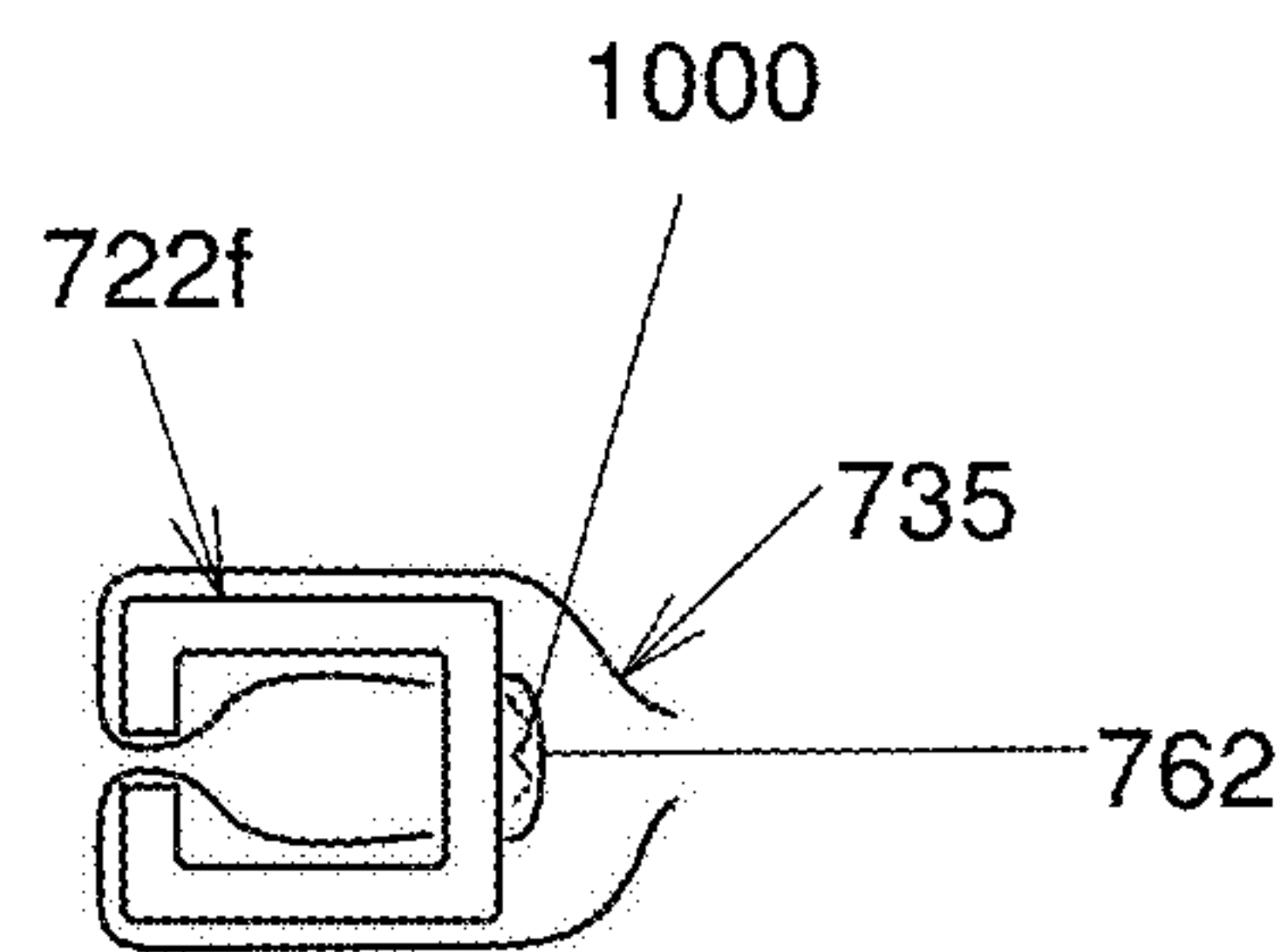


FIG. 86

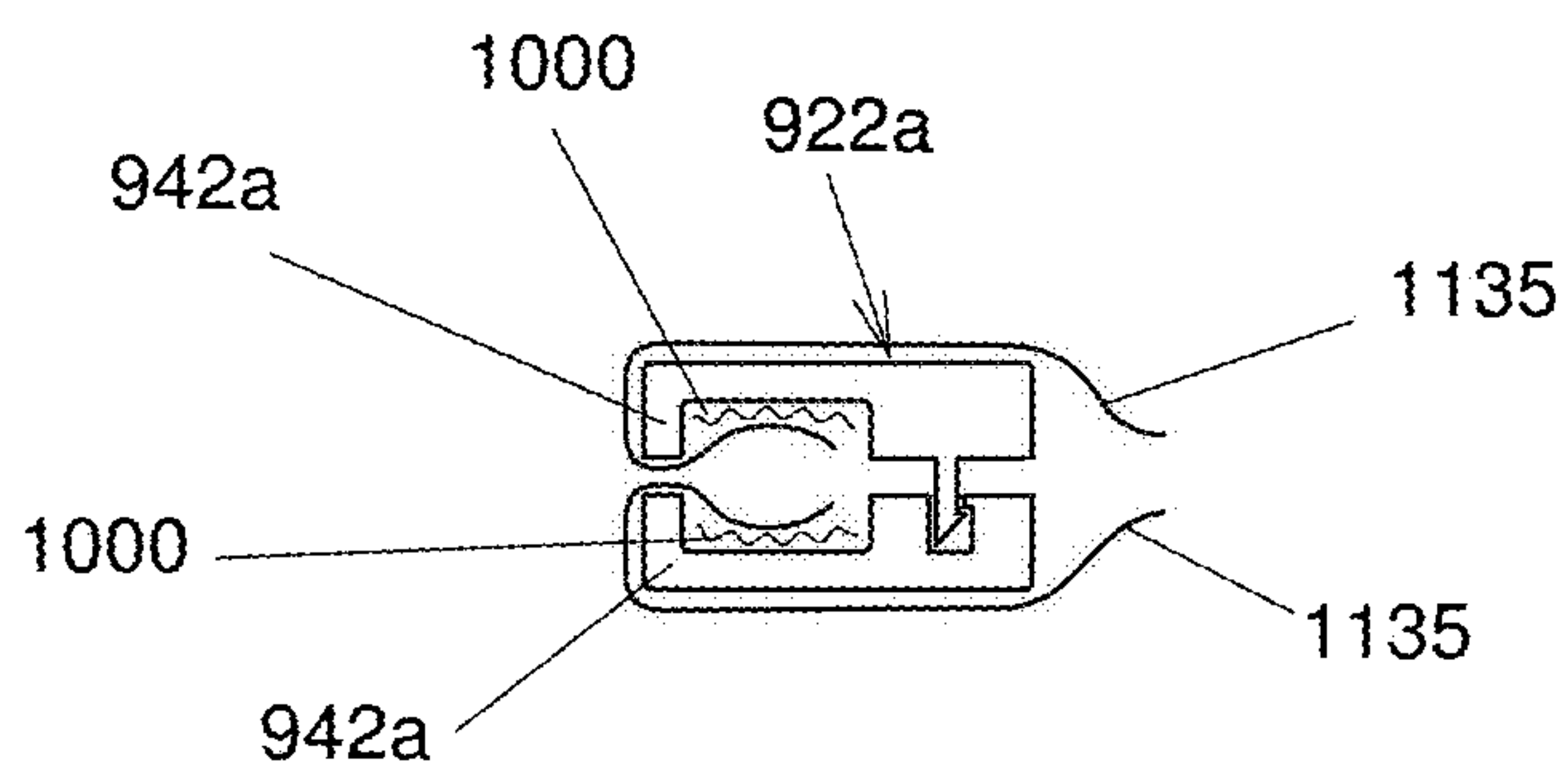


FIG. 87

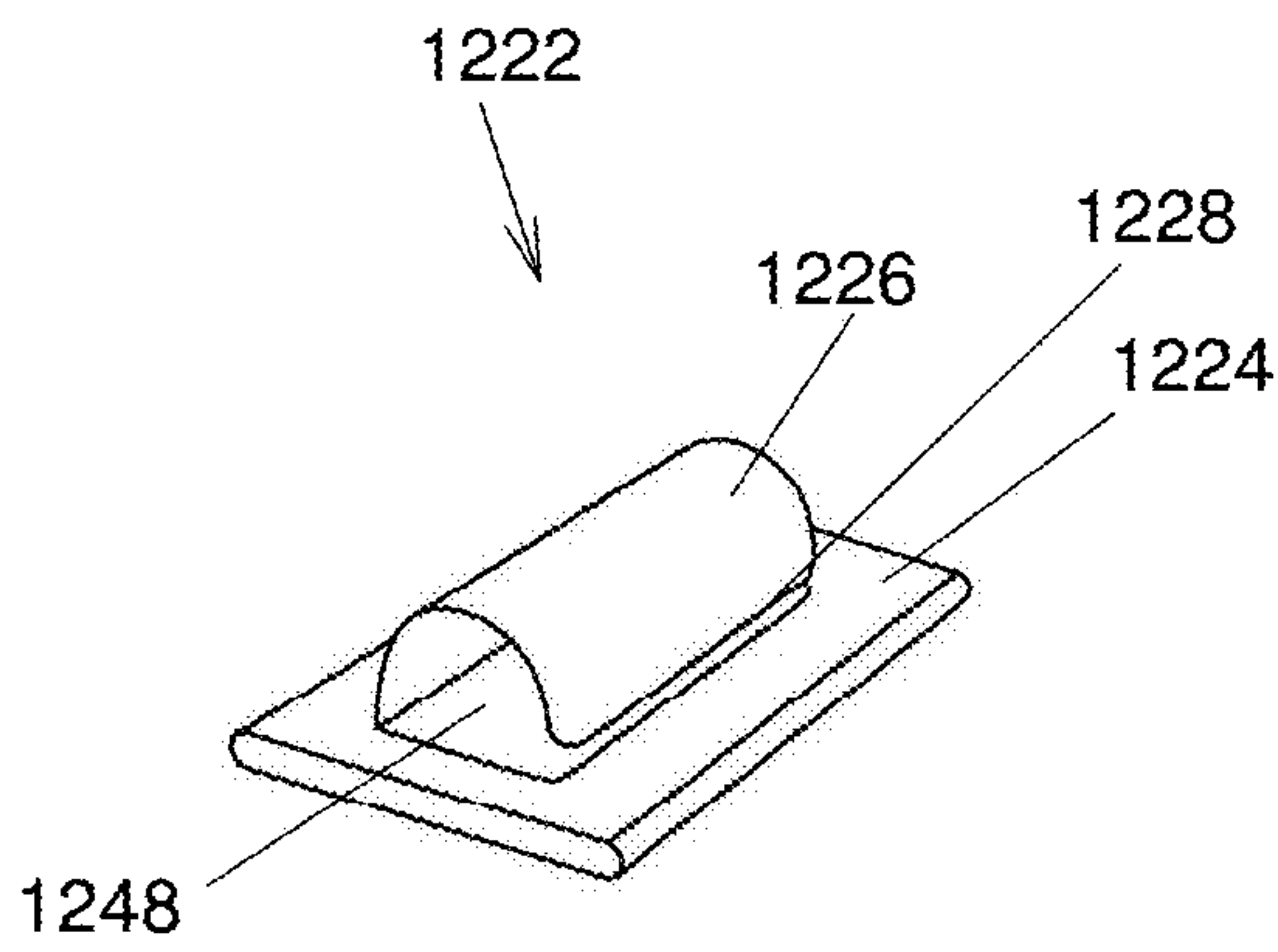


FIG. 88

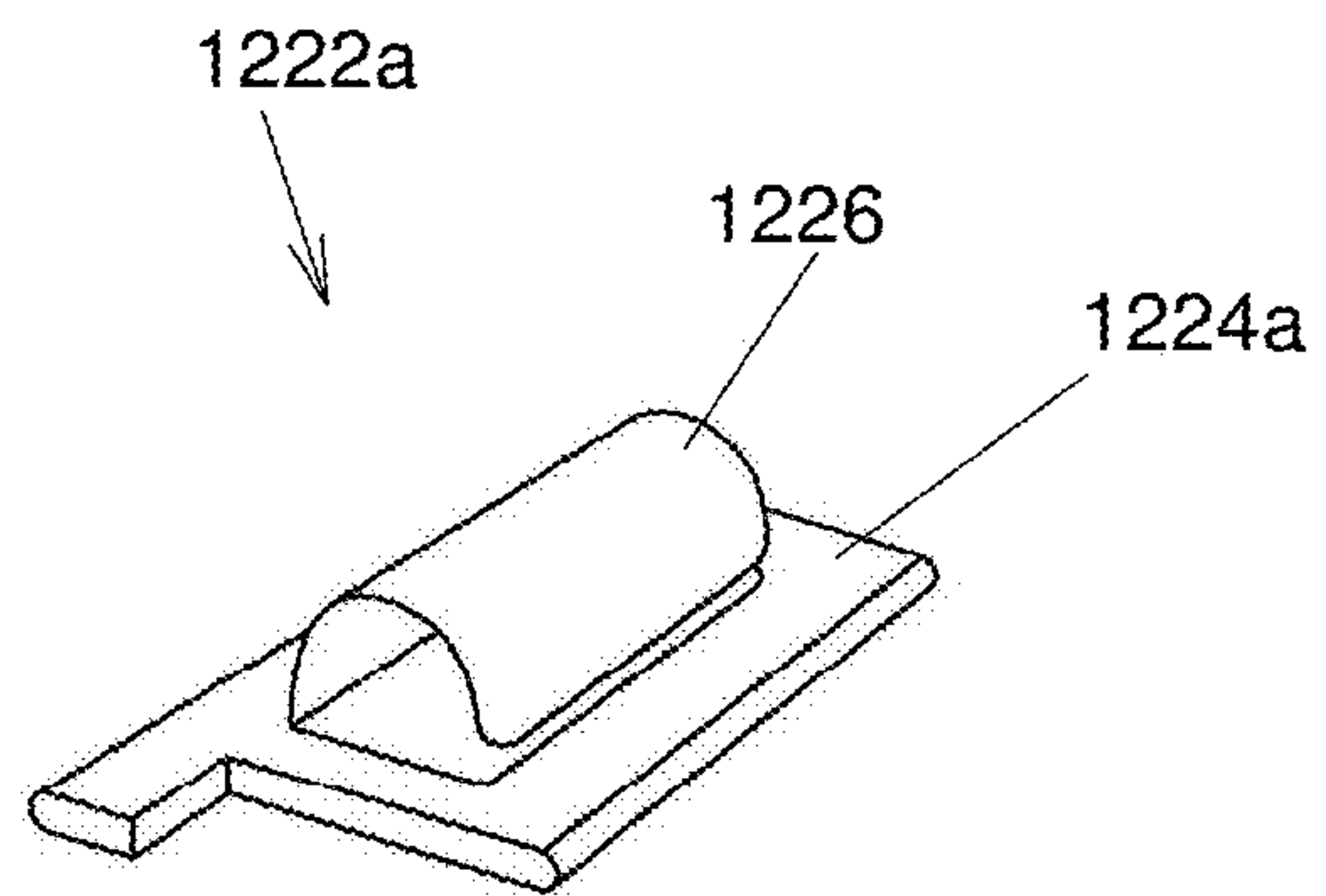


FIG. 90

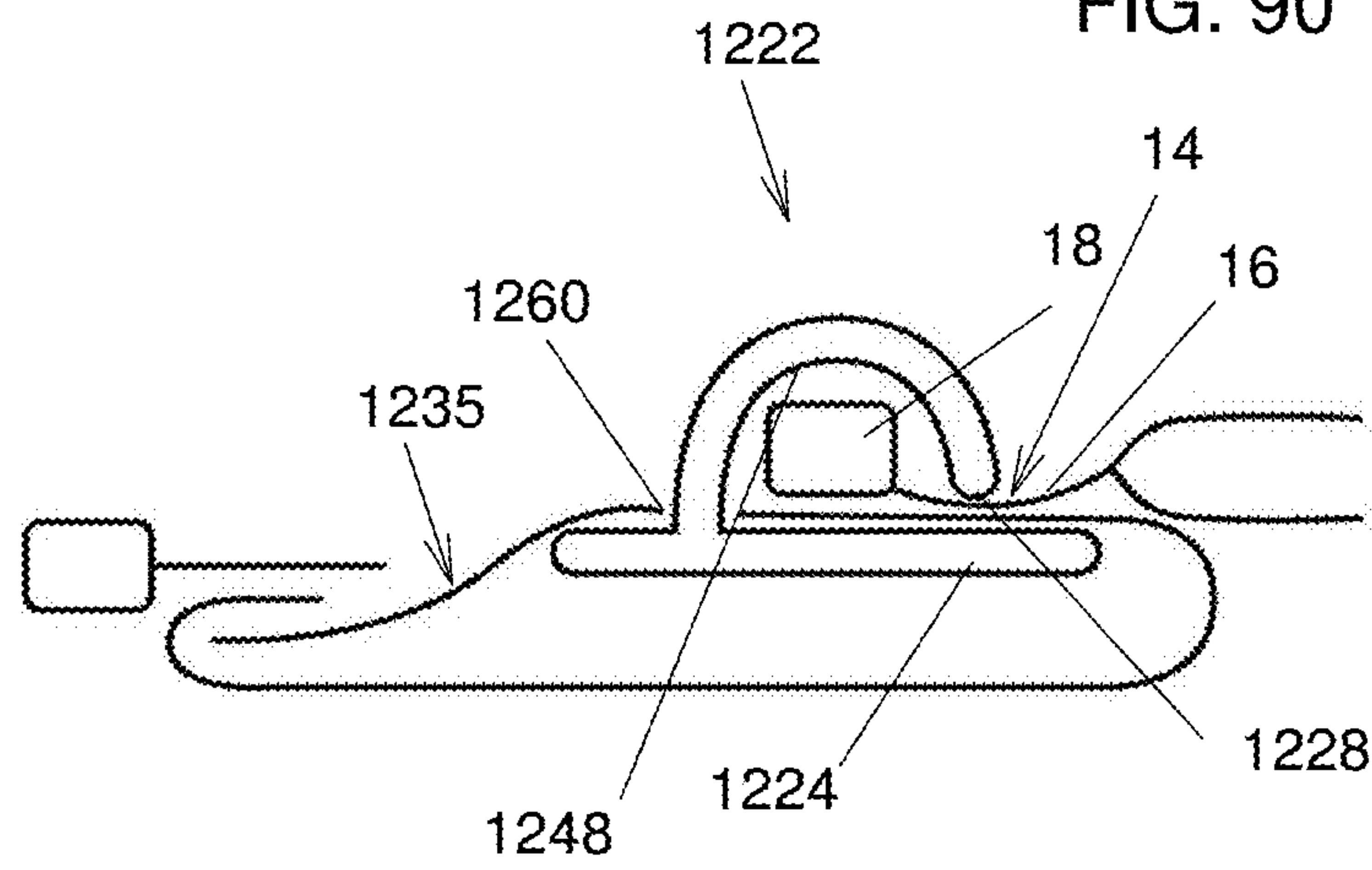


FIG. 89

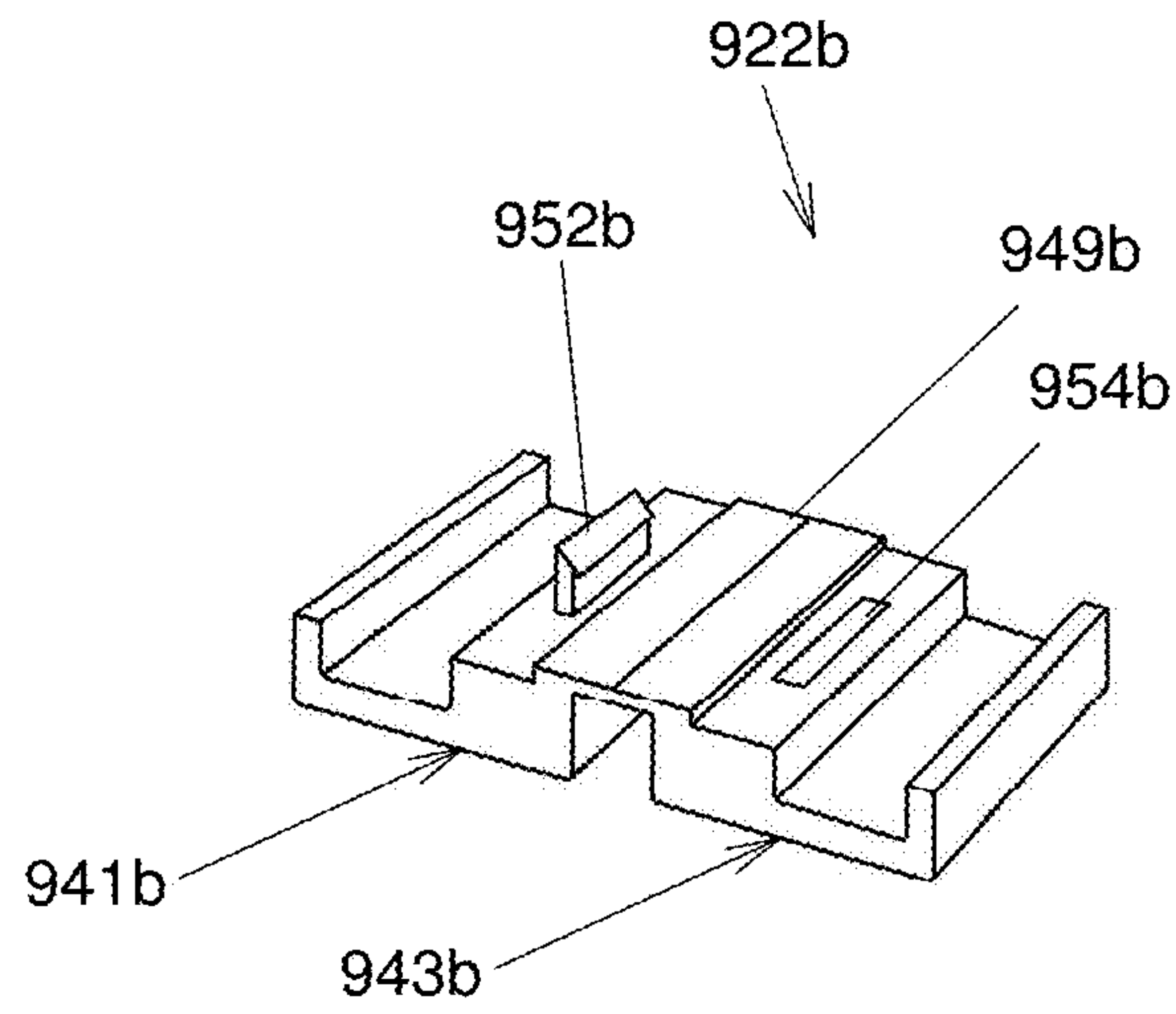


FIG. 91

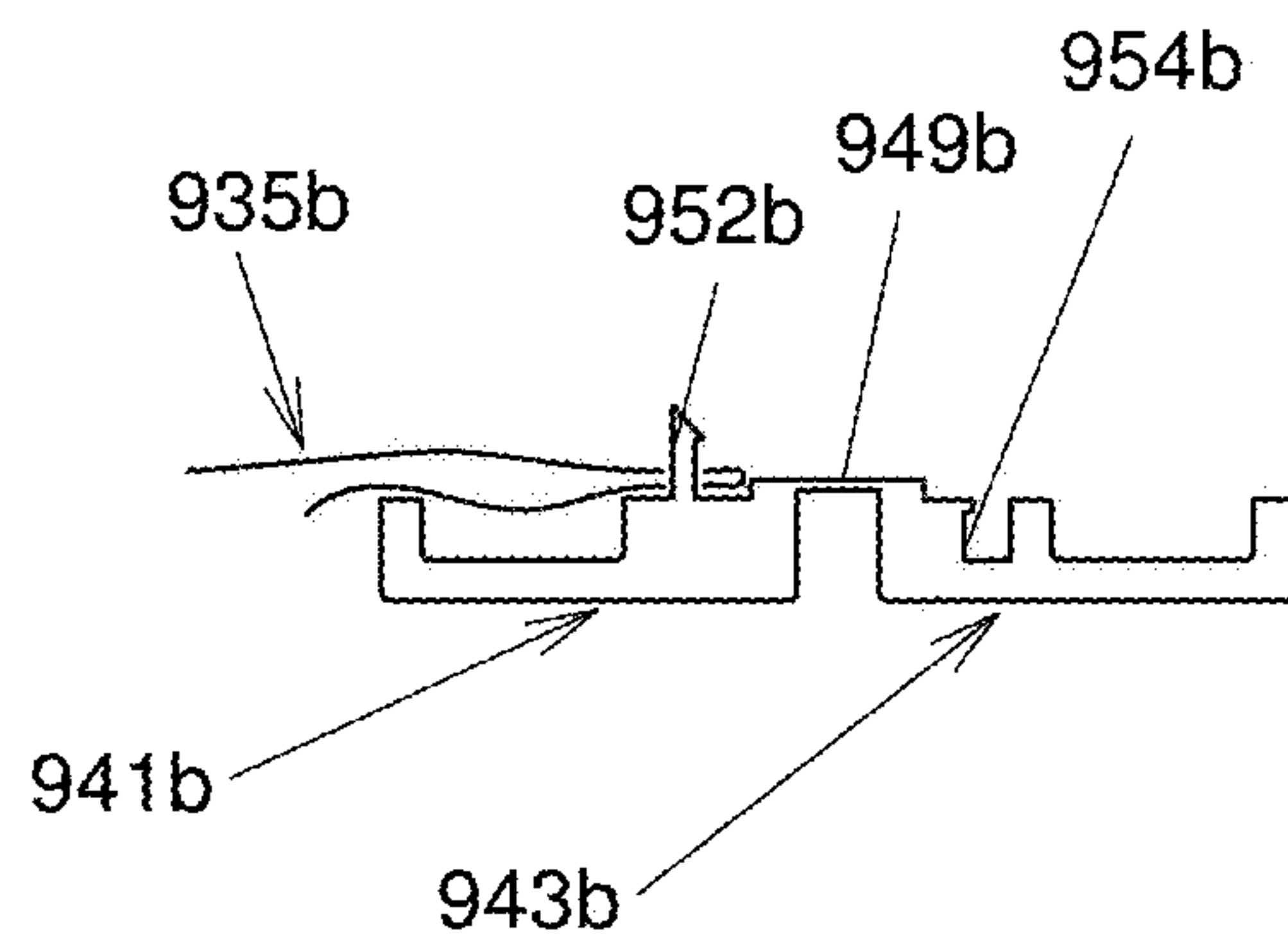


FIG. 92

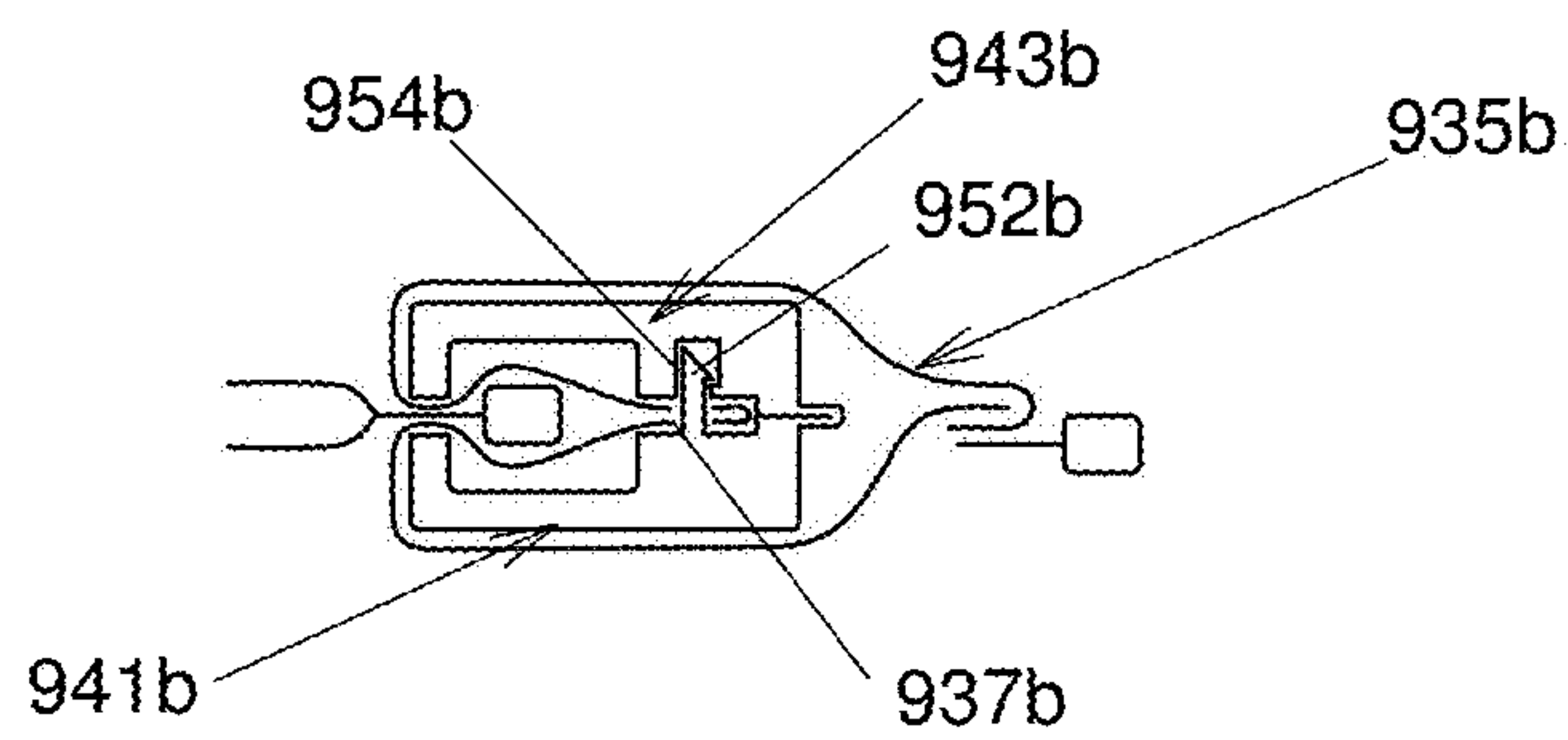


FIG. 93

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GARMENT EXTENDER

FIELD OF THE INVENTION

The present invention relates to the general field of clothing, and is more specifically concerned with a garment extender.

BACKGROUND

Garment extenders, for example coat or jacket extenders, are useful for pregnant women, among others. Using such garment extenders, not only can the pregnant woman use the clothes she owns during pregnancy, but she can also use the extended garment to protect a baby carried in a baby carrier after giving birth. One problem with existing garment extenders is that they typically attach to an existing slide fastener, commonly referred to as a zipper, of the garment. Since there are many incompatible slide fasteners types on the market, this requires a large inventory of garment extenders to fit different brands and models of zip fasteners. Also, the buyer of the garment extender has to guess which type of slide fastener is used in the existing garment, or requires the help of a specialized salesperson to select the right type of garment extender that will zip to the existing slide fastener.

Accordingly, there exists a need for an improved garment extender. It is a general objective of the present invention to provide such an improved garment extender.

SUMMARY OF THE INVENTION

In a broad aspect, there is provided a garment extender usable with a garment having a garment slide fastener, the garment slide fastener having a pair of substantially elongated stringer tapes supporting each a row of teeth extending longitudinally therealong, the garment slide fastener also having a slider movable along the rows of teeth in a reciprocating movement for selectively attaching the teeth of both rows to each other when moved in a closing direction and selectively detaching the teeth of both rows from each other when moved in an opening direction opposed to the closing direction, the garment extender comprising an extender body defining substantially opposed extender body first and second side edges and opposed extender body top and bottom edges extending each between the extender body first and second side edges; at least two attachment mounts provided each at a respective one of the extender body first and second side edges; at least two attachments, each mounted to a respective one of the attachment mounts, each of the attachments including an attachment body and a pair of jaws extending from the attachment body, each jaw terminating at a respective jaw free end, the jaws delimiting a channel therebetween opened at both channel ends thereof and the jaw free ends defining a slit therebetween leading to the channel, each jaw defining opposed jaw inner and outer surfaces, the jaw inner surfaces facing each other with the channel therebetween; wherein each attachment mount includes a foldable material, the attachments being more rigid than the foldable material, the attachment being mounted to the attachment mount with the foldable material running along the jaws so that the jaw inner surfaces, outer surfaces and free ends are covered by the foldable material; wherein, with the attachments operatively secured to the garment slide fastener, the slit of each attachment receives thereinto a gripped portion of one of the stringer tapes and the channel of each attachment receives thereinto the teeth

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that are supported by the stringer tape adjacent the gripped portion, the foldable material being between the jaws inner surfaces and the teeth and between the stringer tapes and the jaw free ends.

There may also be provided a garment extender wherein the attachment body defines a body central portion from which the jaws extend, the foldable material defining a pair of apertures, an inter-aperture portion therebetween and a pair of extra-aperture portions extending away from each other from a respective one of the apertures opposed to the inter-aperture portion, the attachment being mounted to the foldable material with the body central portion inserted through both apertures, the extra-aperture portions each extending from a respective one of the apertures and covering a respective one of the jaws.

There may also be provided a garment extender wherein the extra-aperture portions each extend along a respective one of the jaw inner surfaces, jaw free ends and jaw outer surfaces.

There may also be provided a garment extender wherein a pair of arms extends from the body central portion away from the jaws, at least part of the inter-aperture portion being received between the arms.

There may also be provided a garment extender wherein the extra-aperture portions further extend over the attachment body and are joined to each other so that the attachments are contained in a cavity defined by the foldable material with only the body central portion protruding out of the cavity.

There may also be provided a garment extender wherein the arms are angled so as to converge towards each other in a direction leading away from the body central portion.

There may also be provided a garment extender wherein a prong extends from the body central portion opposed to the jaws, the foldable material defining a prong receiving aperture in the inter-aperture portion, the prong protruding through the prong receiving aperture.

There may also be provided a garment extender further comprising a fastener secured to the prong, the foldable material being secured to the prong between the body central portion and the fastener.

There may also be provided a garment extender further comprising a fastener, the fastener being configured and sized to engage both the attachment and the foldable material so that the foldable material is secured to the attachment.

There may also be provided a garment extender wherein the jaws have bevelled jaw free end portions so that the slit defines flared slit ends.

There may also be provided a garment extender wherein at least one of the jaws has a substantially L-shaped transversal cross-sectional configuration.

There may also be provided a garment extender wherein at least one of the jaws has a substantially arcuate transversal cross-sectional configuration.

There may also be provided a garment extender wherein at least one of the jaws has a substantially rectilinear transversal cross-sectional configuration.

There may also be provided a garment extender wherein the foldable material includes cloth.

There may also be provided a garment extender further comprising a locking clip, the locking clip defining a clip body and a locking portion extending from the clip body, the locking portion being removably insertable in the channel when the attachment is operatively attached to the garment slide fastener, whereby the locking portion increases frictional forces between the attachment mount and the garment

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slide fastener relative to a configuration in which the locking portion is outside of the channel.

There may also be provided a garment extender wherein the attachment body includes attachment body first and second portions from which a respective one of the jaws extends, the body first and second portions being secured to each other with at least part of the foldable material contained between the body first and second portions.

There may also be provided a garment extender wherein the body first and second portions are secured to each other with at least part of the foldable material pinched between the body first and second portions.

There may also be provided a garment extender wherein the foldable material defines a pinched portion pinched between the body first and second portions and a pair of covering portion extending from the pinched portion, each of the covering portion covering a respective one of the jaws.

There may also be provided a garment extender wherein the body first and second portions and the pinched portion are stitched to each other.

There may also be provided a garment extender wherein the body first portion defines a prong and the body second portion define a prong receiving recess, the prong engaging the prong receiving recess so that the prong is locked in the prong receiving recess to lock the body first and second portions to each other; the prong extends through the pinched portion.

There may also be provided a garment extender wherein an arm extends from the body central portion away from the jaws, at least part of the inter-aperture portion being secured to the arm.

There may also be provided a garment extender wherein the attachment has a substantially C-shaped cross-sectional configuration in a plane substantially perpendicular to the channel.

In another broad aspect, there is provided a garment extender usable with a garment having a garment slide fastener, the garment slide fastener having a pair of substantially elongated stringer tapes supporting each a row of teeth extending longitudinally therealong, the garment slide fastener also having a slider movable along the rows of teeth in a reciprocating movement for selectively attaching the teeth of both rows to each other when moved in a closing direction and selectively detaching the teeth of both rows from each other when moved in an opening direction opposed to the closing direction, the garment extender comprising: an extender body defining substantially opposed extender body first and second side edges and opposed extender body top and bottom edges extending each between the extender body first and second side edges; at least two elongated attachment mounts provided along a respective one of the extender body first and second side edges; a plurality of attachments each mounted to one of the attachment mounts at longitudinally spaced apart locations, each of the attachments including an attachment body and a pair of jaws extending from the attachment body, each jaw terminating at a respective jaw free end, the jaws delimiting a channel therebetween opened at both channel ends thereof and the jaw free ends defining a slit therebetween leading to the channel, each jaw defining opposed jaw inner and outer surfaces, the jaw inner surfaces facing each other and delimiting the channel. With the attachments operatively secured to the garment slide fastener, the slit of each attachment receives thereinto a gripped portion of one of the stringer tapes and

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the channel of each attachment receives thereinto the teeth that are supported by the stringer tape adjacent the gripped portion.

There may also be provided a garment extender wherein each attachment mount includes a foldable material, the attachments being more rigid than the foldable material, the attachment being embedded at least partially in the foldable material.

Advantageously, in some embodiments, the proposed garment extender may be used with garments having a wide variety of slide fastener dimensions. Also, in some embodiments, the foldable material may provide good friction characteristics so that the garment extender is relatively securely mounted to the slide fastener. The presence of the foldable material may also, in some embodiments, seal the junction between the slide fastener and the garment extender, thereby minimizing or eliminating cold air and moisture infiltration through this junction.

Other objects, advantages and features of the present invention will become more apparent upon reading of the following non-restrictive description of preferred embodiments thereof, given by way of example only with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1, in a front elevation view, illustrates a garment in the form of a jacket;

FIG. 2, in a front elevation view, illustrates the garment of FIG. 1 to which is attached a garment extender in accordance with an embodiment of the present invention;

FIG. 3, in a front elevation view with parts removed, illustrates part of the garment extender and garment of FIG. 2;

FIG. 4, in a top plan view, illustrates part of the garment and garment extender of FIG. 2;

FIG. 5, in a perspective view, illustrates an attachment part of the garment extender of FIG. 2, the attachment being shown in an open configuration;

FIG. 6, in a front plan view, illustrates the attachment of FIG. 5;

FIG. 7, in a front plan view, illustrates a linking portion part of the attachment of FIG. 5;

FIG. 8, in a top elevation view, illustrates the attachment of FIG. 5, the attachment being shown in a closed configuration;

FIG. 9, in a perspective view, illustrates an alternative attachment usable in the garment extender of FIG. 2;

FIG. 10, in a perspective view, illustrates an other alternative attachment usable in the garment extender of FIG. 2;

FIG. 11, in a perspective view, illustrates yet an other alternative attachment usable in the garment extender of FIG. 2;

FIG. 12, in a perspective view, illustrates yet an other alternative attachment usable in the garment extender of FIG. 2;

FIG. 13, in a front elevation view, illustrates the garment and garment extender of FIG. 2 with part of the garment extender between two garment slide fasteners removed;

FIG. 14, in a top plan view, illustrates yet another attachment usable in the garment extender of FIG. 2;

FIG. 15, in a perspective view, illustrates an attachment string including a flexible link to which are secured a series of the attachments of FIG. 14;

FIG. 16, in a partial perspective view, illustrates a portion of the attachment string of FIG. 15

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FIG. 17, in a rear elevation view, illustrates part of the garment of FIG. 2 and a garment extender similar to the garment extender of FIG. 2, in which the attachments are the attachments of FIG. 14 linked to each other in the attachment string of FIGS. 15 and 16, with a part of the garment extender between two garment slide fasteners removed;

FIG. 18, in a side elevation view, illustrates the attachment strip of FIGS. 15 and 16 with the flexible link folded over itself at a link end thereof;

FIG. 19, in a side elevation view, illustrates a clip usable in conjunction with the attachments of FIG. 14, the clip being shown in an open configuration;

FIG. 20, in a side elevation view, illustrates the clip of FIG. 19, the clip being shown in a closed configuration;

FIG. 21, in a perspective view, illustrates an attachment string in accordance with another embodiment of the present invention;

FIG. 22, in a front elevation view with parts removed, illustrates part of an alternative garment extender attached to the garment of FIG. 2;

FIG. 23, in a perspective view, illustrates an attachment part of the garment extender of FIG. 22;

FIG. 24, in a top cross-sectional view midway through the attachment of FIG. 23, illustrates the garment extender of FIG. 22;

FIG. 25, in a perspective cross-sectional view, illustrates part of the garment extender of FIG. 22 attached to the garment of FIG. 2;

FIG. 26, in a side elevation view, illustrates an alternative attachment usable in the garment extender of FIG. 25;

FIG. 27, in a partial top plan view, illustrates a foldable material part of the garment extender of FIG. 22, here shown prior to assembly of the garment extender;

FIG. 28A, in a schematic top cross-sectional view, illustrates a step performed when mounting the attachment of FIG. 23 to the foldable material of FIG. 27;

FIG. 28B, in a schematic top cross-sectional view, illustrates another step performed when mounting the attachment of FIG. 23 to the foldable material of FIG. 27;

FIG. 28C, in a schematic top cross-sectional view, illustrates yet another step performed when mounting the attachment of FIG. 23 to the foldable material of FIG. 27;

FIG. 28D, in a schematic top cross-sectional view, illustrates yet another step performed when mounting the attachment of FIG. 23 to the foldable material of FIG. 27;

FIG. 28E, in a schematic top cross-sectional view, illustrates yet another step performed when mounting the attachment of FIG. 23 to the foldable material of FIG. 27;

FIG. 29, in a top elevation view, illustrates another alternative attachment usable in the garment extender of FIG. 22;

FIG. 30, in a top elevation view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 31, in a top elevation view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 32, in a top elevation view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 33, in a top elevation view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 34, in a top elevation view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

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FIG. 35, in a top elevation view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 36, in a top elevation view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 37, in a top elevation view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 38, in a front elevation view with parts removed, illustrates a locking clip usable with the garment extender of FIG. 22;

FIG. 39, in a front elevation view, illustrates an alternative locking clip usable with the garment extender of FIG. 22;

FIG. 40, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 41, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 40;

FIG. 42, in a perspective view, illustrates part of an alternative foldable material usable with the attachment of FIG. 41;

FIG. 43, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 40 and 41 mounted to the foldable material of FIG. 42;

FIG. 44, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 45, in top plan view, illustrates the attachment of FIG. 44;

FIG. 46, in top cross-sectional view adjacent a top end of the attachment, illustrates the attachment of FIGS. 44 and 45 mounted to the foldable material of FIG. 27;

FIG. 47, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 48, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 47;

FIG. 49, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 47 and 48 mounted to the foldable material of FIG. 42;

FIG. 50, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 51, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 50;

FIG. 52, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 50 and 51 mounted to the foldable material of FIG. 42;

FIG. 53, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 54, in top cross-sectional view midway through the attachment, illustrates the attachment of FIG. 53 mounted to an alternative foldable material shown in FIG. 67;

FIG. 55, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 56, in top cross-sectional view midway through the attachment, illustrates the attachment of FIG. 55 mounted to the foldable material of FIG. 27;

FIG. 57, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 58, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 57;

FIG. 59, in a perspective view, illustrates part of an alternative foldable material usable with the attachment of FIGS. 57 and 58;

FIG. 60A, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 57 and 58 mounted to the foldable material of FIG. 59;

FIG. 60B, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 57 and 58 mounted to the foldable material of FIG. 42;

FIG. 61, in a perceptive view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 62, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 61;

FIG. 63, in a perspective view, illustrates part of an alternative foldable material usable with the attachment of FIGS. 61 and 62;

FIG. 64, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 61 and 62 mounted to the foldable material of FIG. 63;

FIG. 65, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 66, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 65;

FIG. 67, in a perspective view, illustrates part of the foldable material of usable with the attachment of FIGS. 65 and 66 and with the attachment of FIG. 54;

FIG. 68, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 65 and 66 mounted to the foldable material of FIG. 67;

FIG. 69, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 70, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 69;

FIG. 71, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 69 and 70 mounted to the foldable material of FIG. 27;

FIG. 72, in a perspective view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 73, in top cross-sectional view midway through the attachment, illustrates the attachment of FIG. 72 mounted to an unpierced foldable material;

FIG. 74, in a perspective exploded view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 75, in top cross-sectional view midway through the attachment, illustrates the attachment of FIG. 75 mounted to the foldable material of FIG. 59;

FIG. 76, in a perceptive view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22, the attachment being shown in a first configuration;

FIG. 77, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 76, the attachment being shown in a second configuration;

FIG. 78, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 76 and 77 mounted to an unpierced foldable material;

FIG. 79, in a perceptive view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 80, in a perspective view, illustrates part of another alternative foldable material;

FIG. 81, in a perspective view, illustrates the foldable material of FIG. 80 folded over itself prior to mounting the attachment of FIG. 79 thereto;

FIG. 82, in top cross-sectional view midway through a prong of the attachment, illustrates the attachment of FIG. 79 mounted to the foldable material of FIGS. 80 and 81;

FIG. 83, in a perceptive view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 84, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 83;

FIG. 85, in top cross-sectional view midway through the attachment, illustrates the attachment of FIGS. 83 and 84 mounted to the foldable material of FIG. 27;

FIG. 86, in top cross-sectional view midway through the attachment, illustrates an alternative manner of mounting the attachment of FIG. 29 to the foldable material of FIG. 27;

FIG. 87, in top cross-sectional view midway through a prong of the attachment, illustrates an alternative manner of mounting the attachment of FIG. 79 to two unpierced foldable materials;

FIG. 88, in a perceptive view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 89, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 88 mounted to an alternative foldable material;

FIG. 90, in a perceptive view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 91, in a perceptive view, illustrates yet another alternative attachment usable in the garment extender of FIG. 22;

FIG. 92, in top cross-sectional view midway there-through, illustrates the attachment of FIG. 91 partially mounted to an alternative foldable material; and

FIG. 93, in top cross-sectional view midway there-through, illustrates the attachment of FIGS. 91 and 92 mounted to the alternative foldable material shown in FIG. 92.

DETAILED DESCRIPTION

The term “substantially” is used throughout this document to indicate variations in the thus qualified terms. These variations are variations that do not materially affect the manner in which the invention works and can be due, for example, to uncertainty in manufacturing processes or to small deviations from a nominal value that do not cause significant changes to the invention. These variations are to be interpreted from the point of view of the person skilled in the art.

FIG. 1 illustrates a conventional garment 12, here shown in the form of a jacket, although alternative garments 12 are within the scope of the appended claims. The garment 12 has a garment slide fastener 14. The garment slide fastener 14 has a pair of substantially elongated stringer tapes 16 supporting each a row of teeth 18 extending longitudinally therealong. The stringer tape 16 is a ribbon of any suitable material, such as, non-limitingly, webbing. The garment slide fastener 14 also has a slider 20 movable along the rows of teeth 18 in a reciprocating movement for selectively attaching the teeth 18 of both rows to each other when moved in a closing direction and selectively detaching the teeth 18 of both rows from each other when moved in an opening direction opposed to the closing direction. Such

slide fasteners are conventional and the garment slide fastener 14 is not described in further details herein.

Referring to FIG. 2, a garment extender 10 is attachable to the garment slide fastener 14 to allow extension of the garment 12. For example, the garment extender 10 is usable with a garment 12 in the form of a jacket to leave room for the expanding belly of a pregnant woman or to allow a parent to carry a baby in a baby carrier. However, the garment extender 10 is usable for any other suitable purpose. In some embodiments, the garment extender 10 is attached between spaced apart stringer tapes 16 of the garment slide fastener 14. In other embodiments, for example if the garment extender 10 is used with pants, the stringer tapes 16 are not separated completely along their whole length. Instead, the stringer tapes 16 form a V-shaped gap therebetween in which the garment extender 10 may be positioned (not shown in the drawings).

The garment extender 10 includes a body 21 and at least one attachment 22, some of which are seen for example in FIG. 3. The body 21 includes one or more elements that are positioned in the gap between the stringer tapes 16 of the garment slide fastener 14. In a typical embodiment, the body 21 includes one or more panels of fabric, and, in some embodiment, insulating material. Referring to FIG. 2, The body 21 defines substantially opposed body first and second side edges 24 and 26 and opposed body top and bottom edges 28 and 30 extending each between the body first and second side edges 24 and 26.

Each of the body first and second side edges 24 and 26 is typically provided with at least one respective attachment 22. In some embodiments, each of the body first and second side edges 24 and 26 is provided with a respective plurality of the attachments 22 spaced apart from each other along the body first and second side edges 24 and 26. For example, the attachments 22 are part of two attachment strings 32, each attachment string 32 including attachments 22 linked to each other and secured to one of the body first and second side edges 24 and 26. However, in other embodiments, the attachments 22 are each separately secured to the body 21. In other embodiments, only one attachment 22 is provided at each of the body first and second side edges 24 and 26.

Referring for example to FIG. 5, each of the attachments 22 includes attachment inside and outside portions 34 and 36. The attachment inside portion 34 includes an inside gripping portion 38 and an inside channel forming portion 40. The attachment outside portion 36 includes an outside gripping portion 42 and an outside channel forming portion 44. As seen in FIG. 4, when the attachment 22 is operatively secured to the garment slide fastener 14, the inside and outside gripping portions 38 and 42 grip a gripped portion 46 of one of the stringer tapes 16 therebetween, and the inside and outside channel forming portions 40 and 44 define a channel 49 receiving thereinto the teeth 18 that are supported by the stringer tape 16 adjacent the gripped portion 46. The attachment 22 thus secures the garment extender 10 to the garment slide fastener 14.

Typically, the attachments 22 are removably attachable to the garment slide fastener 14. However, attachments 22 that permanently attach to the garment slide fastener 14 are within the scope of the present invention. In some embodiments, the attachment inside and outside portions 34 and 36 are movable relative to each other between a closed configuration, seen for example in FIG. 8, and an open configuration, seen for example in FIG. 5. The attachment 22 is in the closed configuration when the attachment 22 is attached to the garment slide fastener 14. The inside and outside gripping portions 38 and 42 are spaced apart from

each other to a greater extent in the open configuration than in the closed configuration to allow detachment of the attachment 22 from the garment slide fastener 14.

In some embodiments (not shown in the drawings), the attachment inside and outside portions 34 and 36 are biased towards each other towards the closed configuration, for example by being mounted to a spring or other biasing element. In other embodiments, as in the attachment 22 shown in the drawings, each attachment 22 further includes a lock 48 for selectively locking the attachment 22 in the closed configuration. For example, the lock 48 prevents the attachment inside and outside portions 34 and 36 from moving from the closed configuration to the open configuration unless a predetermined force moving the attachment inside and outside portions 34 and 36 away from each other is exerted. In some embodiments, the predetermined force is such that the lock 48 unlocks if forces that could cause damage to the garment slide fastener 14 were exerted on the garment extender 10.

A specific example of the lock 48 includes lock inside and outside elements 50 and 52 provided respectively in the attachment inside and outside portions 34 and 36. The lock inside and outside elements 50 and 52 are complementarily shaped to snap to each other in the closed position. However, in alternative embodiments, any other suitable lock is used. For example, a lock using magnets is within the scope of the invention, magnets of opposing polarity facing each other in the attachment inside and outside portions 34 and 36 in the closed position. In yet other embodiments, the lock includes a biasing element, such as a spring, extending between the attachment inside and outside portions 34 and 36 and biasing the attachment inside and outside portions 34 and 36 towards the closed position.

For the purpose of this document, the term “snap” refers to a structure and an action in which one part defines a recess accessed through an opening narrower than deeper parts of the recess. Another part includes a pin that has a portion that is slightly larger than the opening. At least one of, and in some cases both, the pin and the opening is resiliently deformable so that when a suitable force is exerted pushing the pin into the recess, deformation occurs so that the portion that is slightly larger than the opening is allowed to move past the opening. Then, the pin and opening, reverse at least partially this deformation, with the portion that is slightly larger than the opening received in the recess, which locks the pin in the recess.

In a specific embodiment of the invention, the inside channel forming portion 40 is between the inside gripping portion 38 and lock inside element 50 and the outside channel forming portion 44 is between the outside gripping portion 42 and lock outside elements 52.

In a very specific embodiment of the invention, the attachment inside and outside portions 34 and 36 are formed of a relatively rigid polymer and structured as follows. In this specific embodiment, the attachment inside and outside portions are identical, and only one of them, the attachment inside portion 34, is described in details.

Referring to FIG. 6, the attachment inside portion 34 includes a base 54, which is for example plate-shaped. The inside gripping portion 38 is a flange extending from the base 54. The flanges of the attachment inside and outside portions 34 and 36 face each other and grip the stringer tape 16 therebetween in the closed configuration. For example, this flange has a length sufficient to extend along a few teeth 18 of the garment slide fastener 14 to distribute stresses exerted on the garment slide fastener 14 over a relatively large portion of the garment slide fastener 14 when the

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garment extender 10 is in use to reduce possibilities of damaging the garment slide fastener 14.

The lock inside element 50 includes a locking element base 56 extending substantially parallel to the inside gripping portion 38, spaced apart therefrom. The inside channel forming portion 40 is delimited by the locking element base 56 and inside gripping portion 38. In some embodiments, the locking element base 56 and inside gripping portion 38 protrude at about the same height from the base 54.

The lock inside element 50 also includes a recess 58 extending in the base 54, accessed through an opening 60 that is at least slightly narrower than the remainder of the recess 58. Furthermore, the lock inside element 50 includes a prong 62 protruding from the base 54. The prong 62 includes a prong wider portion 64 that is slightly larger than the opening 60. The prong 62 and recess 58 are positioned such that when two of the lock inside elements 50 are positioned so that their inside gripping portions 38 face each other, the prong 62 of one of the lock inside elements 50 faces the recess 58 of the other one of the lock inside elements 50, so that the prongs 62 can engage the recesses 58. The recesses 58 and prongs 62 are configured and sized, and have mechanical properties, such that the above-described snap action occurs when the prongs 62 are pushed into the recesses 58.

In some embodiments, the attachment inside and outside portions 34 and 36 could be each attached, for example using glue, to the body 21. However, in some embodiments, the attachment 22 includes an attachment linking portion 66 (seen in FIG. 6 for example) linking the attachment inside and outside portions 34 and 36 to each other. Such a structure facilitates alignment between the attachment inside and outside portions 34 and 36 to achieve the closed configuration. For example, the attachment inside and outside portions 34 and 36 are more rigid than the attachment linking portion 66. The latter is for example relatively flexible to relatively easily allow movements between the open and closed configurations.

Referring to FIG. 7, for example, the attachment linking portion 66 is substantially panel shaped and defines inside and outside portion apertures 70 and 72 respectively receiving the attachment inside and outside portions 34 and 36 (not seen in FIG. 7) thereinto. The attachment linking portion 66 may be made of a polymer overmolded on the attachment inside and outside portions 34 and 36. In some embodiments, as seen in FIG. 6 for example, the attachment linking portion 66 defines at least one groove 74 thereinto, for example two grooves 74, between the inside and outside portion apertures 70 and 72 for facilitating hinging between the attachment inside and outside portions 34 and 36.

In some embodiments, the attachment linking portion 66 is soft enough to allow sewing the attachment linking portion 66 to pieces of fabric. This is advantageous as sewing is a robust and relatively low cost method of attaching components that is well understood in the garment industry.

Referring to FIG. 4, when the attachments 22 are provided in attachment strings 32, the attachment strings 32 may be formed as follows. Each string of attachments includes inside and outside strips 76 and 78, made of a suitable fabric. The inside and outside strips 76 and 78 extend between the attachments 22 and the body 21. The inside and outside strips 76 and 78 may be formed of a single piece of material folded along a fold 80 separating the inside and outside strips 76 and 78 from each other. In alternative embodiments, the inside and outside strips 76 and 78 are made of two different pieces of material. The attachment linking

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portion 66 of each attachment 22 is secured to the inside and outside strips 76 and 78 and the inside and outside strips 76 and 78 are secured to the body 21. For example, the inside and outside strips 76 and 78 extend generally parallel to each other.

The inside strip 76 has an inside strip side edge 82, opposed to the fold 80 and the outside strip 78 has an outside strip side edges 86, opposed to the fold 80. Adjacent the fold 80, the inside and outside strips 76 and 78 overlap one of the body first and second side edges 24 and 26, the body first side edge 24 being shown in FIG. 4. Part of the body 21 is secured to the inside and outside strips 76 and 78. This layered structure including the inside and outside strips 76 and 78 with part of the body 21 therebetween can be sewn or assembled in any other suitable manner.

The attachments 22 are provided between the inside and outside strips 76 and 78. In some embodiments, the inside and outside strips 76 and 78 are folded over the attachment linking portion 66 adjacent the inside and outside strips side edges 82 and 86 and the layered structure formed of part of one of the inside and outside strips 76 and 78, the attachment linking portion 66 and another part of the same one of the inside and outside strips 76 and 78 is sewn together, or otherwise secured, for example using glue or rivets, among other possibilities.

As seen in FIG. 2, in some embodiments, the body 21 is provided with at least one extender slide fastener 88 extending between the body top and bottom edges 28 and 30, which allows opening the garment 12 without removing the garment extender 10. In some embodiments, the garment extender 10 is provided with a pair of laterally spaced apart extender slide fasteners 88 extending between the body top and bottom edges 28 and 30. This allows removal of part of the garment extender 10, the part between the two extender slide fasteners 88, as seen in FIG. 13, while preserving the ability to close and open the garment 12. Also, many different pieces of materials securable to the extender slide fasteners 88 having different widths could be provided to adjust the garment extender 10 to different sizes. In some embodiments, the removable portion includes a wider portion and a narrower portion. When the wider portion is worn over the belly of a pregnant woman, the garment extender 10 may be used to accommodate the expanding belly of the pregnant woman. When the wider portion is worn over the chest of an intended user, which may be achieved by mounting the garment extender 10 upside down with respect to the orientation in which the wider portion is over the belly, a baby carrier carrying a baby may be worn in register with the chest of the intended user and the garment extender 10 may then accommodate the additional volume occupied by the baby and baby carrier.

FIG. 9 illustrates another attachment 122 usable instead of the attachment 22 in the garment extender 10. The attachment 122 differs from the attachment 22 in that the attachment inside and outside portions 134 and 136 have lock inside and outside elements 150 and 152 that differ from the lock inside and outside elements 50 and 52. More specifically, while still employing the “snap” principle, the lock inside and outside elements 150 and 152 don’t include the locking element base 56. Instead, the lock inside and outside elements 150 and 152 have a structure similar to that of a conventional push button used commonly in the garment industry. Also, the attachment inside and outside portions 134 and 136 are not identical as they each include a single element part of the conventional push button structure, which need to be complementarily shaped to the other element of the conventional push button structure. In alter-

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native embodiments, the same push button structures are used, but two of them are present on each of the attachment inside and outside portions 234 and 236, as seen in FIG. 10 for the attachment 222.

FIG. 11 illustrates yet another attachment 322 usable instead of the attachment 22 in the garment extender 10. The attachment 322 differs from the attachment 22 in that the lock inside and outside elements 350 and 352 differ from the lock inside and outside elements 50 and 52. One of the lock inside and outside elements 350 and 352 include at least one deformable elongated tongue 390 provided with a ledge 392 generally transversal to the tongue 390. The tongue 390 is insertable in a recess 394 of the other one of the lock inside and outside elements 350 and 352 by resiliently deforming the tongue 390 until the tongue 390 has been inserted enough that it can spring back to its undeformed configuration with the ledge 392 abutting against a correspondingly shaped portion of the recess 394 so that removal of the tongue 390 from the recess 394 requires deformation of the tongue 390 to retract the ledge 392 so that the later can be retracted from the recess 394. In other embodiments, the tongue 390 deforms enough to be removed from the recess 394 when enough pulling force is exerted thereonto. The attachment 322 includes a pair of tongues 390 and recess 394.

FIG. 12 illustrates yet another attachment 422 usable instead of the attachment 22 in the garment extender 10. The attachment 422 is similar to the attachment 322 except that it includes only one tongue 490 and one recess 494, which are longer than the tongue 390 and recess 394. Also, the attachment 422 includes inside and outside gripping portions 438 and 442 that are provided with teeth 443 to better grip the stringer tapes 16.

FIGS. 14 to 20 present various aspects related to yet another attachment 522 usable instead of the attachment 22 in an alternative garment extender 510, the latter being shown in FIG. 17. Typically, but not necessarily, a plurality of attachments 522 are used to secure the body 521 to the garment 12, as in the garment extender 10. The attachments 522 could be individually secured to the body 521, for example using stitches, rivets or an adhesive. However, in some embodiments, the attachments 522 are linked to each other in an attachment string 532 through a flexible link 533, as shown in FIG. 15 for example and further described hereinbelow.

Referring to FIG. 16, each of the attachments 522 defines a channel 549 defining a channel axis 551 extending substantially parallel to one of the body first and second side edges 24 or 26 at which the attachment 522 is provided, as seen in FIG. 17. Returning to FIG. 16, each of the attachments 522 also define a slit 553 parallel to the channel axis 551 and leading laterally into the channel 549 along the whole channel 549. As seen in FIG. 14, the slit 553 of each attachment 522 faces away from the body 521.

As seen in FIG. 16, each slit 553 is defined between a pair of slit edges 555 and 557. Each slit 553 defines axially opposed slit end portions 559 and 561 and a slit intermediate portion 563 therebetween. At least one of the slit edges 555 and 557, for example both slit edges 555 and 557 as seen in FIG. 16, is bevelled in the slit end portions 559 and 561 so that an axial access to the slit 553 is tapered towards the slit intermediate portion 563. This configuration facilitates sliding the attachments 522 along the stringer tapes 16.

In some embodiments, the attachments 522 may be slightly flexible so that the slit 553 may be widened slightly against a biasing force forcing the slit edges 555 and 557 away from each other when the stringer tape 16 is inserted

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thereinto, so that the attachments 522 engage the stringer tape 16 with a small axial friction force. In other embodiments, the slits 553 are be wider than the typical thickness of the stringer tape 16.

As seen in FIG. 14, the attachments 522 may have a substantially C-shaped transversal cross-sectional configuration. With the attachments 522 operatively secured to the garment slide fastener 14, the slit 553 of each attachment 522 receives thereinto a gripped portion 46 of one of the stringer tapes 16 therebetween and the channel 549 of the attachment 522 receives thereinto the teeth 18 that are supported by the stringer tape 16 adjacent the gripped portion 46.

It should be noted that in opposition to the attachments 22, the attachments 522 typically don't grip the stringer tapes 16 with a large force, but are movable therealong by exerting a relatively small force. Thus, the gripping force is such that friction between the attachments 522 and the stringer tapes 16 is relatively low. As described hereinbelow, in some embodiments, a clip 538 (seen in FIG. 17 for example) is used to prevent the attachments 522 from sliding out of the stringer tape 16. However, in alternative embodiments, the attachments 522 grip the stringer tape 16 with enough force that the clip 538 is not required. Also, the channel 549 has a transversal cross-sectional configuration such that the teeth 18 of commercially available slide fasteners 14 may be freely received thereinto with minimal or no friction.

To ensure that the teeth 18 cannot exit the attachment 522 through the slit 553, the latter has a relatively narrow width, and, when the attachments 522 are deformable, the attachment 522 is rigid enough to prevent excessive deformation that would allow such movement of the teeth 18 through the slit 553.

With reference to FIG. 15, the attachments 522 provided at at least one of the body first and second side edges 24 and 26, and typically at both of the body first and second side edges 24 and 26, are linked to each other in an attachment string 532 through a flexible link 533. Typically, the flexible link 533 is less rigid than the attachments 522. The attachments 522 are secured to the flexible link 533 in any suitable manner. For example, the attachments 522 are glued to the flexible link 533. In other embodiments, the attachments 522 define a peripherally extending flange (not shown in the drawings) that is embedded in the flexible link 533, for example by overmolding that latter over the attachments 522, and more specifically the flanges. Any other suitable manner of securing the attachments 522 to the flexible link 533 is also within the scope of the invention.

As seen in FIG. 14, the attachment string 532 may be secured to a strip 576 part of the body 521 and extending parallel to the flexible link 533, similarly to the use of the strips 76 and 78 in the garment extender 10. The strip 576 may be folded over itself at one strip side edge 582 thereof to form a fold 581 folding over the flexible link 533. The folded strip 576 may be secured in any suitable manner to the flexible link 533, for example using stitches, rivets or an adhesive, among other possibilities.

The attachments 522 include two opposed end attachments 522 and intermediate attachments 522 provided therebetween. In some embodiments, as seen in FIG. 18, with the flexible link 533 folded over itself adjacent one link end 535 thereof, the end attachment 522 adjacent to that link end 535 is insertable between two adjacent ones of the intermediate attachments 522. This is possible if the spacing between the end attachment 522 and the intermediate attachment 522 to which it is adjacent is large enough to allow such a fold and if the distance between the two intermediate

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attachments is larger than the length of the end attachment 522. This ability to fold over the attachment string 532 and insert the end attachment 522 between two intermediate attachments 522 is useful to shorten the attachment string 532 so that the attachment string 532 can be used with garment slide fasteners 14 of different lengths. Indeed, the folded over portion can be maintained folded by simply engaging the stringer tape 16 between the two intermediate attachments 522 with the end attachment 522.

In some embodiments, a clip 538 is provided, as seen in FIG. 17. The clip 538 is operable for gripping the stringer tape 16. When the clip 538 grips the stringer tape, the attachment string 532, and therefore the attachments 522 may be maintained at a fixed location relative thereto. This functionality may be achieved in many alternative manners. Two such manners are illustrated in FIG. 17. It should be noted that in some embodiments, only one of these manners is implemented, at one or both sides of the garment extender 510.

FIGS. 19 and 20 illustrate the clip 538. The clip 538 is movable between open and closed configurations, shown respectively in FIGS. 19 and 20. The clip 538 includes a pair of jaws 540 and 542 that are adjacent to each other in the closed configuration, and spaced apart from each other in the open configuration. The jaws 540 are operated using levers 544 and 546 extending respectively from the jaws 540 and 542. The lever 546 extends integrally from the jaw 542 in the embodiment of the clip 538 shown in FIGS. 19 and 20, but other types of levers are within the scope of the invention. The jaws 540 and 542 may be biased towards the closed configuration, for example using a biasing element, or the clip 538 may be configured so that when the jaws 540 and 542 are in the closed configuration, a minimal force is required to achieve the open configuration, so that the jaws are maintained in the closed configuration unless this minimal force is exerted. The jaws 540 and 542 may also be provided with protrusions 548 configured to engage or penetrate any piece of fabric or any soft material provided between the two jaws 540 and 542. Examples of suitable clips 538 are provided in U.S. Pat. No. 8,806,726 issued Aug. 19, 2014 to Tien Chung Ent Co Ltd and in U.S. Pat. No. 7,979,965 issued Jul. 19, 2011 to Tien Chung Ent Co Ltd, the contents of which are hereby incorporated by reference in their entirety. However, any other suitable clip may be used.

Referring to FIG. 17, the clip 538 may be secured to the remainder of the garment extender 510 in many different manners. For example, as shown for the bottom clip 538 in FIG. 17, the clip 538 is secured to one of the body 521 and flexible link 533 between two adjacent ones of the attachments 522. In FIG. 17, the clip 538 is secured to the body 521 with the jaws 540 and 542 positioned between two attachments 522. With the garment extender 510 operatively secured to the garment 12 (only partially shown in FIG. 17), the clip 538 is operable for selectively and reversibly gripping one of the stringer tapes 16 between the two adjacent ones of the attachments 522. When this is achieved, the attachments 522 are prevented from sliding along the stringer tapes 16 accidentally.

Another manner of providing the clip 538 is illustrated for the top clip 538 of FIG. 17. The clip 538 is secured to the body 521, for example using a small piece of rope 550, one end of which being secured to the body 521, and the other end of which being secured to the clip 538. Thus, this clip 538 may be moved relative to the remainder of the garment extender 510. The rope 550 is positioned and configured so that with the garment extender 510 operatively secured to the garment 12, the clip 538 is operable for selectively and

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reversibly gripping jointly one of the flexible links 533 and one of the stringer tapes 16 adjacent to the one of the flexible link 533. Indeed, in this configuration, when the attachments 522 receive therebetween the stringer tape 16, the stringer tape 16 and flexible link 533 run parallel and adjacent to each other. The clip 538 can therefore receive between its jaws 540 and 542 the stringer tape 16 and flexible element 533, for example at the top or bottom ends thereof.

While each side of the garment extender 510 is provided with only one clip 538 in FIG. 17, it is within the scope of the invention to provide more than one clip 538 for each side of the garment extender 510, for example one adjacent the top of the garment extender 510, and one adjacent the bottom of the garment extender 510, among other possibilities.

In use, the garment extender 510 is secured to the garment 12 by simply aligning the teeth 18 of one half of the slide fastener at one end thereof with one of the channels 549 of one of the end attachments 522 and pulling this end attachment 522 along the stringer tape 16. As they reach the stringer tape 16, the other attachments 522 may be automatically aligned with the stringer tape 16 if the flexible link 533 has enough rigidity, or may need a bit of adjustment by the intended user to be suitably aligned to suitably engage the stringer tape 16 with the teeth 18 positioned in the channel 549. If needed, the flexible link 533 is folded over itself when the end of the attachment string 532 is reached so that the end attachment 522 can be suitably positioned to achieve the configuration of FIG. 18. Then, the clip 538 is used to ensure that the attachments 522 remain fixed relative to the garment 12. The other half of the garment extender 510 can be simultaneously secured to the garment 12 with the first half. In other embodiments, when the garment extender 510 includes two portions that can be detached from each other, each portion can be secured individually to the garment 12, followed by attachment to each other of the two separated portions.

FIG. 21 illustrates another attachment string 632 usable in the garment extender 510 instead of the attachment string 532. The attachment string 632 is very similar to the attachment string 532 except that it also includes a fixation attachment 622, which is similar in shape and function to the attachments 22, 122, 222, 322 and 422. The fixation attachment 622 is secured to the flexible link 533 along the line defined by the attachments 522 in any suitable manner, for example through overmolding or use of an adhesive, among other possibilities. The attachment string 632 includes two fixation attachments 622, but attachment strings 632 including only one fixation attachments 622 or more than two fixation attachments 622 are also possible. In use, the attachment string 632 is used similarly to the attachment string 532, except that when the attachment string 632 is properly positioned, the fixation attachment 622 is closed to securely grip the stringer tape 16. In such embodiments, the clips 538 may not be required and may be omitted.

In alternative embodiments, referring to FIG. 22, attachment strings 732 include attachments 722 that are mounted to attachment mounts 733. Attachment mounts 733 are, for example, provided each at a respective one of the extender body first and second side edges 24 and 26 (only the first one being shown in FIG. 22). The attachment strings 732 are usable with any suitable body 21 and 521 described hereinabove, or with any other suitable alternative body.

The attachments 722 are at least partially embedded in a foldable material 735 part of the attachment mounts 733. In some embodiments, the attachment mounts 733 are entirely made of the foldable material 735, but in other embodi-

ments, the attachment mount 733 may include other elements. The attachments 722 are more rigid than the foldable material 735. For example, the foldable material 735 includes a cloth or fabric. In some embodiments, most of or all the parts of the attachment 722 that are exposed to the intended user of the attachment string 732 are covered by the foldable material 735. Advantageously, this improves the aesthetics of the attachment string 732. Also, since the attachment strings 732 may be used in a baby carrying context, this configuration may protect a carried baby from exposure to relatively rigid and irritating attachments 722. Furthermore, the foldable material 735 may improve the seal between the attachment string 732 and the slide fastener 14, reducing cold air infiltration in the garment 12. The foldable materials, such as foldable material 735, used in garment extenders described hereinbelow is represented schematically as a single line, with no thickness, to reduce clutter in the drawings and facilitate understanding of the structure of the garment extender. However, the foldable material 735 and all the other foldable materials may have any suitable thickness.

The attachments 722, and all the other attachments described hereinbelow, may be slightly flexible, similarly to the attachment 522, or may be stiffer so as to deform with difficulty in normal use. Also, similarly to the attachment 22, the attachments 722, and the other attachments described hereinbelow, may be used individually, in other words one attachment 722 attached to the garment slide fastener 14, or in a plurality, in the attachment string 732.

Referring to FIG. 23, the attachment 722 includes an attachment body 740 and a pair of jaws 742 extending from the attachment body 740, each jaw 742 terminating at a respective jaw free end 746. The jaws 742 delimit a channel 748 therebetween opened at both channel ends thereof and the jaw free ends 746 define a slit 750 therebetween leading to the channel 748. In that respect, the attachment 722 acts similarly to the attachment 522 described hereinabove. Each jaw 742 defines opposed jaw inner and outer surfaces 752 and 754, the jaw inner surfaces 752 facing each other and delimiting the channel 748. Typically, the channel 748 is wider than the slit 750.

Referring to FIG. 24, each attachment mount 733 includes a foldable material 735, and is typically made entirely of the foldable material 735. The foldable material 735 may be formed by a single continuous sheet of the foldable material 735, or by many such sheets secured to each other and to the attachment 722. The attachments 722 are mounted to the attachment mount 733 with the foldable material 735 running along the jaws 742 so that the jaw inner surfaces, outer surfaces and free ends 752, 754 and 746 are covered by the foldable material 735.

With the attachments 722 operatively secured to the garment slide fastener 14, the slit 750 of each attachment 722 receives thereinto a gripped portion 46 of one of the stringer tapes 16 and the channel 748 of each attachment 722 receives thereinto the teeth 18 that are supported by the stringer tape 16 adjacent the gripped portion 46. The foldable material 735 is present between the jaws inner surfaces 752 and the teeth 18 and between the stringer tape 16 and the jaw free ends 746. In such embodiments, the foldable material 735 may increase friction between the attachment string 732 and the stringer tape 16 so that the attachment string 732 grips the stringer tape 16 better than in the case in which similar attachments 722 are not covered with the foldable material 735.

In a specific embodiment of the invention, the attachment body 740 defines a body central portion 758 from which the

jaws 742 extend. For example the body central portion 758 is substantially plate-shaped and perpendicular to the jaws 742, but any other suitable configuration is within the scope of the invention. The foldable material 735 defines a pair of apertures 760, an inter-aperture portion 762 therebetween and a pair of extra-aperture portions 764 extending away from each other from a respective one of the apertures 760 opposed to the inter-aperture portion 762. The attachments 722 are mounted to the foldable material 735 with the body central portion 758 inserted through both apertures 760, the extra-aperture portions 764 each extending from a respective one of the apertures 760 to cover a respective one of the jaws 742. More specifically, the extra-aperture portions 764 each extend along a respective one of the jaw inner surfaces 752, jaw free ends 746 and jaw outer surface 754.

In some embodiments, a pair of arms 766 extend from the body central portion 758 away from the jaws 742 and at least part of the inter-aperture portion 762 is received between the arms 766. Also, in some embodiments, the extra-aperture portions 764 further extend over the attachment body 740 and are joined to each other so that the attachments 722 are contained in a cavity 768 defined by the foldable material with only the body central portion 758 protruding out of the cavity 768. Since the body central portion 758 is in the channel 748, in use, when attached to a garment 12, the attachments 722, which are typically made of a suitable polymer or metal, have no exposed part and therefore present a more pleasing aesthetic aspect and cannot directly contact skin or other surfaces. In such embodiments, the extra-aperture portions 764 may be sewn together, along with the body 21 at one of the body first and second side edges 24 and 26, thereby securing the attachment string 732 to the body 21. In some embodiments, the foldable material 735 has one end portion thereof folded over the other one prior to sewing to the body 21.

FIGS. 27, 28A to 28E and 24 illustrate a method of attaching the attachments 722 to the foldable material 735. FIG. 27 illustrates the foldable material 735 in the form of a piece of cloth into which pairs of apertures 760 have been formed, which are slit-shaped for example. The pairs of apertures 760 have been provided at longitudinally spaced apart locations along the foldable material 735. Each pair of apertures 760 is used to mount a respective attachment 722 to the foldable material 735.

As seen in a schematic cross-section along line XXVIII-XXVIII of FIG. 27, the foldable material 735 is first laid flat, as shown in FIG. 28A, and then folded over itself in the inter-aperture portion 762, as seen in FIG. 28B, for example along the whole length of the foldable material 735, so that the apertures 760 within each pair are in register with each other. Then, one of the jaws 742 is inserted through both apertures 760. The foldable material 735 is then slid over the whole jaw 742, as seen in FIG. 28D and over one of the arms 766, as seen in FIG. 28E, until the inter-aperture portion 762 is located between the two jaws 742. Subsequently, the extra-aperture portions 764 are folded over the jaw outer surfaces 754 and joined to each other and to the body 21, for example using stitches, as seen in FIG. 24. It should be noted that this manner of manufacturing the attachment string 32 uses no glue and no fastener, and only a single piece of foldable material 735. It can therefore be efficiently implemented for mass production.

The attachments 722 may have a uniform cross-sectional configuration along their whole length, in other words along the channel 748, so that they can be manufactured by cutting a suitably shaped extrusion at regular intervals. In other embodiments, as seen in FIG. 26, the slit 750a of an

alternative attachment **722a** is flared at both ends **753a** thereof, similarly to the attachment **522**. Other suitable configurations are also within the scope of the invention. Many alternatives to the attachment **722** are described hereinbelow. Only the differences between these alternatives and the attachment **722** are described in details and it should be assumed that unless otherwise mentioned, an alternative is to be presumed to work similarly to the base embodiment to which it is compared.

The attachment **722** has a pair of jaws that each have a substantially L-shaped transversal configuration, with two proximal portions extending from the attachment body **740** parallel to each other and distal portions extending perpendicular to the proximal portions and towards each other to define the slit **750**. However, in other embodiments, as seen for example respectively for attachments **722b** and **722j** in FIGS. **33** and **37**, one of both of the jaws **742b** and **742j** has a substantially arcuate transversal cross-sectional configuration. In the latter case, both jaws **742j** and the attachment body **740j** are arcuate, so that the attachment **722j** as a whole has a substantially arcuate configuration, traversing most of a circle. In the case of the attachment **722b** the other jaw **743b** has a substantially rectilinear transversal cross-sectional configuration.

The arms **766** may also have various configurations. In the attachment **722**, as seen in FIG. **23**, the arms **766** are rectilinear and are angled so as to converge towards each other in a direction leading away from the body central portion **758**. However, as seen for attachment **722f** of FIG. **29**, the arms **766** may be omitted in some embodiments. In other embodiments, as seen for attachment **722g** and **722h** of respectively FIGS. **30** and **31**, the arms **766g** and **766h** may be rectilinear and parallel to each other. The arms **766g** extend each opposed and in register with a respective one of the jaws **742**, or may be located inwardly relative to the jaws **742**. In yet other embodiments, the arms **766i** are L-shaped, similarly to the jaws **742**. As seen in FIG. **33** for attachment **722b**, in some embodiments only one arm **766b** is provided. In other embodiments, as seen for attachment **722c** of FIG. **34**, two rectilinear arms **766c** diverging from each other are provided. However, converging arms **766d**, seen in FIG. **35** for attachment **722d** having a curved jaw **742d**, or parallel arms **766e**, seen in FIG. **36** for attachment **722e** having a curved jaw **742e** are usable. The various configurations of the arms **766** to **766i** described above are selected according to the properties of the foldable material **735** so that the attachments **722** to **722j** are properly held in place in the foldable material **735** while being relatively easy to attach thereto.

Referring to FIG. **38**, in some embodiments, a locking clip **780** is provided. The locking clip **780** defines a clip body **782** and a locking portion **784** extending from the clip body **782**. The locking portion **784** is removably insertable in the channel **748** when the attachment **722** is operatively attached to the garment slide fastener **14**. The locking portion **784** increases frictional forces between the attachment mount **733** (not seen in FIG. **38**) and the garment slide fastener **14** relative to a configuration in which the locking portion **784** is outside of the channel, helping in ensuring that the garment extender **10** remains fixed relative to the garment **12**. It should be noted that the presence of the foldable material **735** (not shown in FIG. **38** for clarity) in the channel **748** is advantageous as this foldable material will provide a cushioning effect that allows use of a single locking clip **780** with teeth **18** of various dimensions.

For example, the locking portion **784** is rectilinear and the clip body **782** is substantially C-shaped and defines clip

body first and second ends **786** and **788**. The locking portion **784** extends from the clip body **782** at the clip body first end **786**. There is a gap **790** between the clip body second end **788** and the locking portion **784**. The locking clip **780** is for example made of a resiliently deformable material, such as a suitable polymer or metal. The locking clip **780** is configured so that the locking portion **784** can be slid along the channel **748** until the gap **790** is outside of the channel **748**, at which point the locking clip **780** can be deformed so that the clip body second end **788** clears the attachment **722**, which allows removal of the locking portion **784** from the channel **748** by sliding the locking portion **784** therealong. Attachment of the clip **780** proceeds by following these steps in reverse. The locking clip **780** is configured so that it remains secured to the attachment **722** unless the gap **790** is positioned outside of the channel **748**. For example, the clip is configured so that unless sufficient external forces are exerted thereonto, the gap **790** remains inside the channel **748**. As seen in FIG. **39**, in alternative embodiments, a locking clip **780a** has a clip body **782a** defining an aperture **792a** thereinto, allowing to secure the locking clip **780a** to the garment extender **10** using a rope or in any other suitable manner (not shown in the drawings) so that the locking clip **780a** is less likely to be lost.

FIGS. **40** and **41** illustrate yet another attachment **722k** that omits the arms **766**. Instead, a prong **766k** extends from the body central portion **740k** opposed to the jaws **742k**. As seen in FIG. **42**, the foldable material **735k** defines a prong receiving aperture **761k** in the inter-aperture portion **762k**. When the attachment **722k** is mounted to the foldable material **735k** similarly to the manner described hereinabove with respect to the attachment **722**, the prong **766k** protrudes through the prong receiving aperture **761k**, as seen in FIG. **43**, which helps in maintaining the attachment **722k** at a suitable location in the foldable material **735k**. In some embodiments, the prong **766k** terminates with a head **763k** larger than the remainder of the prong **766k** and sized relative to the prong receiving aperture **761k** so that the head **763k** is insertable in the prong receiving aperture **761k**, but not easily removable therefrom accidentally. For example, insertion and removal of the head **763k** from the prong receiving aperture **761k** may require slightly stretching or otherwise deforming the foldable material **735**.

In the attachment **722**, the arms **766** extend along the whole length of the attachment **722**. However, as seen in the alternative attachment **722I** shown in FIGS. **44** to **46**, in other embodiments, the arms **766I** of an attachment **722I** extend each along only part of the length of the attachment **722I**. In that case, more than two arms **766I** may be provided, for example two pairs of arms **766I**, one at each end of the attachment **722I**.

With the attachments **722** to **722I**, the attachments **722** to **722I** are movable relative to the foldable material **735**, and it is the configuration of the attachments **722** and **722I** and the manner in which they are inserted in the foldable material **735** that ensures that the attachments **722** to **722I** remain fixed relative to the foldable material **735**. In other embodiments, as shown below, attachments may be secured to the folding material **735** using an adhesive, stitches, a fastener or by pinching part of the folding material **735**.

Referring to FIGS. **47** to **49**, there is shown an attachment **822** similar to the attachment **722k** in that it includes a prong **866** insertable in the prong receiving aperture **761k** of the foldable material **735k**, as seen in FIG. **49**. However, the attachment **822** further includes a fastener **865** or **865'** in the form of respectively a square or round washer that is insertable on the prong **866** to pinch the foldable material

735*k* between the attachment body **840** and the fastener **865** or **865'**. It should be noted that although FIG. 47 illustrates two different fasteners **865** or **865'**, typically only one of the fasteners **865** or **865'** is used, although use of both fasteners is within the scope of the invention. The fastener **865** or **865'** typically snaps in place when inserted on the head **863** so that accidental removal of the fastener **865** or **865'** from the prong **866** is unlikely.

In another embodiment, an attachment **822a** similar to the attachment **822** and shown in FIGS. 50 to 52 includes an alternative fastener **865a** taking the form of a panel in which an aperture **867a** is provided, the prong **866a** being configured to snap to the fastener **865a** when the prong **866a** is inserted in the aperture **877a**. In some embodiments, the fastener **865a** is hinged to the attachment body **840a** so attachment of the fastener **865a** to the prong **866a** is facilitated.

FIGS. 53 and 54 illustrate an other alternative attachment **822b**. In this embodiment, the foldable material **835b**, seen in FIG. 54 and illustrated separately in FIG. 67, is not secured to the body central portion **848b** but to an arm **866b** extending therefrom, using for example a fastener **865b** in the form of a rivet. To that effect, the arm **866b** defines an arm aperture **863b** and a pair of rivet apertures **867b** are provided in the inter-aperture portion **862b** of the foldable material **835b**. The rivet apertures **867b** are configured and positioned so that when the attachment **822b** is mounted to the foldable material **835b** and the latter is folded so that the two rivet apertures **867b** are in register with each other, the arm aperture **863b** is in register with the rivet apertures **867b** so that the fastener **865b** can be inserted therethrough to secure the foldable material **835b** to the arm **866b**.

FIGS. 55 and 56 illustrate another attachment **822c** similar to the attachment **822b** except that the foldable material **835c** does not necessarily include the rivet apertures **867b** and the arm aperture **863b** may be omitted. Instead, the inter-aperture portion **862c** is secured to the arm **866c** using for example an adhesive (not shown in FIGS. 55 and 56) provided between the arm **866c** and the inter-aperture portion **862c** or stitches (not shown in FIGS. 55 and 56) extending through both the arm **866c** and the inter-aperture portion **762c**. In some embodiments, a groove **869** is formed along the arm **866c** to receive the adhesive or to provide a thinner portion of the arm **866c** that facilitates stitching therethrough.

FIGS. 57 to 60B illustrate yet another attachment **822d** and FIGS. 61 to 64 illustrate yet another attachment **822e** that use respectively one or two fasteners **865d** and **865e**, for example rivets. The attachments **822d** and **822e** both omit the arms **766** and prong **866** and are substantially C-shaped. In the attachments **822d** and **822e**, one or more fasteners **865d** or **865e** are configured and sized to engage both the attachment **822d** or **822e** and the foldable material **835d** or **835e** so that the foldable material **835d** or **835e** is secured to the attachment body **840d** or **840e** or the jaws **842d** or **840e**. A fastener receiving aperture **863d** extends through the body central portion **840d** of the attachment **822d**. A fastener receiving aperture **863e** extends through each of the jaws **842e** of the fastener **822e**. The foldable material **835d** used with the fastener **822d** defines a rivet receiving aperture **867d** and the foldable material **835e** used with the fastener **822e** defines a pair of rivet receiving aperture **867e**. The rivet receiving apertures **867d** and **867e** are positioned and configured to be in register with the fastener receiving aperture **863d** and **863e** when the foldable material **835d** and **835e** is inserted in the channel **848d** and **848e** of respectively the attachments **822d** and **822e** so that each fastener **865d** or

865e can be inserted through the fastener receiving apertures **863d** and **863e** and the rivet receiving apertures **867d** and **867e** to secure the foldable material **835d** and **835e** to the attachments **822d** and **822e** when the fastener **865d** and **865e** is suitably locked to the attachments **822d** and **822e**, as seen respectively in FIGS. 60A and 64. It should be noted that in these embodiments, the apertures **760** may be omitted. The foldable material **835d** and **835e** can then be folded over the remainder of the attachment **822d** and **822e** as in the attachment **722**. As seen in FIG. 60B, in other embodiments the apertures **760** are provided and the fastener **865d** acts similarly to the prong **866**.

FIGS. 65 to 68 illustrate yet another attachment **822f** that combines features of the attachments **822b** and **822a**. In the attachment **822f**, a single arm **866f** defining an arm aperture **869f** extending therethrough extends from the middle of the central body portion **848f**. A fastener **865f** is hinged to the arm **866f** and includes a prong **861f** positioned for engaging and snapping to the arm aperture **869f** when the fastener **865f** is folded over the arm **866f**. The rivet apertures **867b** are positionable in register with the arm aperture **869f** so that the prong **861f** can extend therethrough. When the attachment **822f** is mounted to the foldable material **835b**, the foldable material **835b** is pinched between the fastener **865f** and the arm **866f**.

FIGS. 69 to 71 illustrate yet another type of fastener **865g** usable with an attachment **822g** similar to the attachment **822** in which the prong **866** is omitted. Instead, the fastener **865g** is substantially C-shaped and conforms to the shape of the body central portion **848g** and part of the jaws **842g**. The fastener **865g** includes protrusions **867g** positioned to engage correspondingly shaped recesses **863g** formed in the jaws **842g**. It should be noted that jaws including the protrusion and the fastener including the recess is also within the scope of the invention. The fastener **865g** is resiliently deformable and configured to snap in place when the protrusions **867g** are in register with the recesses **863g**, thereby attaching the fastener **865g** to the attachment **822g** with the inter-aperture portion **862g** pinched therebetween. As seen in FIGS. 72 and 73, in other embodiments the fastener **865h** may instead be insertable in the channel **848h** of the attachment **822h**, and both the attachment **822h** and the fastener **865h** may be substantially C-shaped, with a recessed portion present in both that engage each other to prevent undesired rotations therebetween. The attachment **822h** works similarly to the attachment **822d**, except that the aperture **863d** may be omitted and replaced by a protrusion/recess pair, as in the attachment **822g** and fastener **865g** assembly. However, as seen in FIGS. 74 and 75, the fastener **865i** may be usable with the foldable material **835d** and include a prong **867i** inserted in a suitable positioned aperture **863i**. In such embodiments, the prong extends through a suitable formed aperture **867d** formed in the foldable material **835d**.

In yet other embodiments, the foldable material is pinched between two portions of a two parts attachment body, which are then secured to each other in any suitable manner. An example of an attachment **922** using this principle is shown in FIGS. 76 to 78. In the attachment **922**, the attachment body **940** includes attachment body first and second portions **941** and **943** from which a respective one of the jaws **942** extends. When the attachment **922** is mounted to the foldable material **935**, the body first and second portions **941** and **943** are secured to each other with at least part of the foldable material **935** contained between the body first and second portions **941** and **943**, as seen in FIG. 78.

To that effect, the attachment body first and second portions **941** and **943** are each substantially L-shaped, with a central portion **945** corresponding to the body central portion **758**, and an arm portion **947** extending therefrom away from the jaws **942**. When the body first and second portions **941** and **943** are secured to each other, the arm portions **947** are substantially parallel and adjacent to each other and pinch the foldable material **935** therebetween. In the embodiment shown in FIGS. **76** to **78**, the arm portions **947** are secured to each other to form a hinge **949** opposed to the central portions **945**, but in other embodiments, the body first and second portions **941** and **943** are not permanently attached to each other before the attachment **922** is mounted to the foldable material **935**.

The attachment **922** is mounted to the the foldable material **935** similarly to the attachment **822h** in that no apertures are needed in the foldable material **935**. To mount the attachment **922**, the attachment **922** is laid with the hinge **949** open, and seen in FIG. **77**, and the foldable material **935** (not seen in FIG. **77**) is laid flat on the open attachment **922**, which is then closed to achieve the configuration of FIG. **76**, which pinches the foldable material **935** between the arm portions **947**. Stitches **951**, represented schematically in FIG. **78**, passing through the arm portions **947** and the portion of the foldable material **935** pinched therebetween can then be used to secure the arm portions **947** to each other so that the foldable material **935** has a portion thereof that remains secured between the arm portions **947**. Then, the remainder of the foldable material **935** can be folded over the remainder of the attachments **922** as described hereinabove to cover the attachment **922**.

FIG. **79** illustrates yet another attachment **922a** mounted to the foldable material **935a** (seen in FIGS. **80** and **81**) using a similar manner, except that no stitches **951** are required and that the body first and second portions **941a** and **943a** are not hinged to each other. Instead the body first and second portions **941a** and **943a** are manufactured detached from each other and attached to each other afterwards. For example, the body first portion **941a** defines at least one prong **952a** (here two prongs **952a** are defined) and the body second portion defines a corresponding number of prong receiving recesses **954a**. When the attachment **922a** is mounted to the foldable material **935a**, the prongs **952a** each engage a corresponding prong receiving recess **954a** so that the prong **952a** is locked in the prong receiving recess **954a** to lock the body first and second portions **941a** and **943a** to each other. Such prongs and apertures are known in the art and may for example involve a prong **952a** having a hooked free end configured to engage a ledge formed at the opening of the prong receiving recess **954a**. When the prongs **952a** are suitably resiliently deformed, they can enter the prong receiving recesses **954a** until the resilient deformation is allowed to reverse due to the configuration of the prong receiving recesses **954a**, at which point the body first and second portions **941a** and **943a** are joined to each other. Other types of prongs and corresponding recesses are also within the scope of the invention.

The prongs extend through a pinched portion **937a** of the foldable material **935a**, for example through suitably located pinched portion apertures **939a** seen in FIGS. **80** and **81**. More specifically, a pair of pinched portion apertures **939a** may be provided for each prong **952a** and the foldable material **935a** may be folded so that the pinched portion apertures **939a** within each pair are in register with each other. The foldable material **935a** is then positioned so that the prongs **952a** are inserted in the pinched portion apertures **939a** and the body second portion **943b** may then be

mounted to pinch the pinched portion **937a** between the body first and second portions **941a** and **943a**. Afterwards, the foldable material **935a** can be folded over the remainder of the attachment **922a** as in the attachment **922**, as seen in FIG. **82**.

FIGS. **91** to **93** illustrate an attachment **922b** that incorporates aspects of both attachment **922** and **922a**. More specifically, a hinge **949b** extends between substantially L-shaped body first and second portions **941b** and **943b**, similarly to the attachment **922**, but instead of stitches, a combination prong **952b** and prong receiving recesses **954b** is used to lock the body first and second portions **941b** and **943b** to each other. Only one prong **952b** and prong receiving recess **954b** pair is provided, but any other suitable number is usable. Since there is only one prong **952b**, the foldable material **935b** can define a single pair of suitably shaped prong receiving apertures **937b**.

Yet another type of attachment **922c** is seen in FIGS. **83** to **85**. The attachment **922c** is similar to the attachment **722g** except that it includes a resiliently deformable body central portion **948c** allowing opening and closing of the jaws **942c** and a lock **951c** provided between the two jaws **942c**. The foldable material **935c** is not pinched by the attachment **922c**, but defines a pair of lock receiving apertures **937c** that receive the lock **951c** therethrough after the foldable material **935c** is folded over itself as in the attachment **922**. The lock **951c** includes lock first and second portions **952c** and **954c** that each extend from a respective jaw and which are configured to snap to each other during the attachment **922c** mounting process.

The above-described attachments may, in some embodiments, not require the use of glue or other adhesives to mount the attachment to the foldable material. However, in other embodiments, such an adhesive is used. As seen for example in FIG. **86** in which the attachment **722f** is secured to the inter-aperture portion **762** using an adhesive **1000**. FIG. **86** is only one example of how an adhesive **1000** may be used to secure foldable materials to attachments and other variants are also within the scope of the invention.

Also, the above-described attachments have been described as attaching to a single piece of foldable material. However, referring to FIG. **87**, if an adhesive is used, two pieces of foldable materials **1135** may each be secured inside a respective jaw **942a** of an attachment, for example the attachment **922a**, using the adhesive **1000**, instead of pinching the foldable material **935a** as described hereinabove. The foldable material **1135** is then folded over the attachment **922a** as described hereinabove. The other attachments described herein could also be similarly adhered to the foldable material in a similar manner. In such embodiments, the foldable material **1135** exposed to the environment when used may be made of a weatherproofed material, while the foldable material **1135** provided closer to the intended user may be softer, for example made of fleece.

FIG. **89** illustrates another manner of mounting an attachment **1222**. The attachment **1222** defines a substantially flat base **1224**, which is for example rectangular, although other shapes, such as, non-limitingly, an L-shaped base **1224a**, seen in FIG. **90** for attachment **1222a**, is within the scope of the invention. An arcuate clip **1226** extends from the base and curves back towards the base **1224** so as to define a gap **1228** therebetween. The interior of the clip **1226** forms the channel **1248**, while the gap **1228** acts like the slit **750**. The foldable material **1235** defines a single slit **1260** receiving the clip **1226** therethrough so that the base **1224** is entirely received into a cavity defined in the foldable material **1235**, while the clip **1226** is outside of the cavity and is therefore

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not covered by the foldable material **1235**. The attachment **1222** is free floating in the cavity or adhered or stitched to the foldable material **1235**.

Although the present invention has been described hereinabove by way of exemplary embodiments thereof, it will be readily appreciated that many modifications are possible in the exemplary embodiments without materially departing from the novel teachings and advantages of this invention. Accordingly, the scope of the claims should not be limited by the exemplary embodiments, but should be given the broadest interpretation consistent with the description as a whole.

What is claimed is:

1. A garment extender usable with a garment having a garment slide fastener, the garment slide fastener having a pair of substantially elongated stringer tapes supporting each a row of teeth extending longitudinally therealong, the garment slide fastener also having a slider movable along the rows of teeth in a reciprocating movement for selectively attaching the teeth of both rows to each other when moved in a closing direction and selectively detaching the teeth of both rows from each other when moved in an opening direction opposed to the closing direction, the garment extender comprising:

an extender body defining substantially opposed extender body first and second side edges and opposed extender body top and bottom edges extending each between the extender body first and second side edges;

at least two attachment mounts provided each at a respective one of the extender body first and second side edges;

at least two attachments, each mounted to a respective one of the attachment mounts, each of the attachments including an attachment body and a pair of jaws extending from the attachment body, each jaw terminating at a respective jaw free end, the jaws delimiting a channel therebetween opened at both channel ends thereof and the jaw free ends defining a slit therebetween leading to the channel, each jaw defining opposed jaw inner and outer surfaces, the jaw inner surfaces facing each other with the channel therebetween;

wherein each attachment mount includes a foldable material and the attachments are made of polymer or metal material, the attachment being mounted to the attachment mount with the foldable material running along the jaws so that the jaw inner surfaces, outer surfaces and free ends are covered by the foldable material;

wherein, with the attachments operatively secured to the garment slide fastener, the slit of each attachment receives thereinto a gripped portion of one of the stringer tapes and the channel of each attachment receives thereinto the teeth that are supported by the stringer tape adjacent the gripped portion, the foldable material being between the jaws inner surfaces and the teeth and between the stringer tapes and the jaw free ends.

2. The garment extender as defined in claim **1**, wherein the attachment body defines a body central portion from which the jaws extend, the foldable material defining a pair of apertures, an inter-aperture portion therebetween and a pair of extra-aperture portions extending away from each other from a respective one of the apertures opposed to the inter-aperture portion, the attachment being mounted to the foldable material with the body central portion inserted through both apertures, the extra-aperture portions each

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extending from a respective one of the apertures and covering a respective one of the jaws.

3. The garment extender as defined in claim **2**, wherein the extra-aperture portions each extend along a respective one of the jaw inner surfaces, jaw free ends and jaw outer surfaces.

4. The garment extender as defined in claim **2**, wherein a pair of arms extends from the body central portion away from the jaws, at least part of the inter-aperture portion being received between the arms.

5. The garment extender as defined in claim **4**, wherein the extra-aperture portions further extend over the attachment body and are joined to each other so that the attachments are contained in a cavity defined by the foldable material with only the body central portion protruding out of the cavity.

6. The garment extender as defined in claim **4**, wherein the arms are angled so as to converge towards each other in a direction leading away from the body central portion.

7. The garment extender as defined in claim **2**, wherein a prong extends from the body central portion opposed to the jaws, the foldable material defining a prong receiving aperture in the inter-aperture portion, the prong protruding through the prong receiving aperture.

8. The garment extender as defined in claim **7**, further comprising a fastener secured to the prong, the foldable material being secured to the prong between the body central portion and the fastener.

9. The garment extender as defined in claim **2**, further comprising a fastener, the fastener being configured and sized to engage both the attachment and the foldable material so that the foldable material is secured to the attachment.

10. The garment extender as defined in claim **2**, wherein an arm extends from the body central portion away from the jaws, at least part of the inter-aperture portion being secured to the arm.

11. The garment extender as defined in claim **1**, wherein the jaws have bevelled jaw free end portions so that the slit defines flared slit ends.

12. The garment extender as defined in claim **1**, wherein the attachment has a substantially C-shaped cross-sectional configuration in a plane substantially perpendicular to the channel.

13. The garment extender as defined in claim **1**, wherein at least one of the jaws has one of a substantially L-shaped transversal cross-sectional configuration, a substantially arcuate transversal cross-sectional configuration, or a substantially rectilinear transversal cross-sectional configuration.

14. The garment extender as defined in claim **1**, wherein the foldable material includes cloth.

15. The garment extender as defined in claim **1**, further comprising a locking clip, the locking clip defining a clip body and a locking portion extending from the clip body, the locking portion being removably insertable in the channel when the attachment is operatively attached to the garment slide fastener, whereby the locking portion increases frictional forces between the attachment mount and the garment slide fastener relative to a configuration in which the locking portion is outside of the channel.

16. The garment extender as defined in claim **1**, wherein the attachment body includes attachment body first and second portions from which a respective one of the jaws extends, the body first and second portions being secured to each other with at least part of the foldable material contained between the body first and second portions.

17. The garment extender as defined in claim **16**, wherein the body first and second portions are secured to each other

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with at least part of the foldable material pinched between the body first and second portions.

18. The garment extender as defined in claim 17, wherein the foldable material defines a pinched portion pinched between the body first and second portions and a pair of covering portion extending from the pinched portion, each of the covering portion covering a respective one of the jaws.

19. The garment extender as defined in claim 18, wherein the body first and second portions and the pinched portion are stitched to each other.

20. The garment extender as defined in claim 16, wherein the body first portion defines a prong and the body second portion defines a prong receiving recess, the prong engaging the prong receiving recess so that the prong is locked in the prong receiving recess to lock the body first and second portions to each other;

the prong extends through the pinched portion.

21. A garment extender usable with a garment having a garment slide fastener, the garment slide fastener having a pair of substantially elongated stringer tapes supporting each a row of teeth extending longitudinally therealong, the garment slide fastener also having a slider movable along the rows of teeth in a reciprocating movement for selectively attaching the teeth of both rows to each other when moved in a closing direction and selectively detaching the teeth of both rows from each other when moved in an opening direction opposed to the closing direction, the garment extender comprising:

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an extender body defining substantially opposed extender body first and second side edges and opposed extender body top and bottom edges extending each between the extender body first and second side edges;

at least two elongated attachment mounts provided along a respective one of the extender body first and second side edges;

a plurality of attachments each mounted to one of the attachment mounts at longitudinally spaced apart locations, each of the attachments including an attachment body and a pair of jaws extending from the attachment body, each jaw terminating at a respective jaw free end, the jaws delimiting a channel therebetween opened at both channel ends thereof and the jaw free ends defining a slit therebetween leading to the channel, each jaw defining opposed jaw inner and outer surfaces, the jaw inner surfaces facing each other and delimiting the channel;

wherein, with the attachments operatively secured to the garment slide fastener, the slit of each attachment receives thereinto a gripped portion of one of the stringer tapes and the channel of each attachment receives thereinto the teeth that are supported by the stringer tape adjacent the gripped portion;

wherein each attachment mount includes a foldable material and the attachments are made of polymer or metal material, the attachment being embedded at least partially in the foldable material.

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